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MODEL RAILWAY JOURNAL

No. 110
1999

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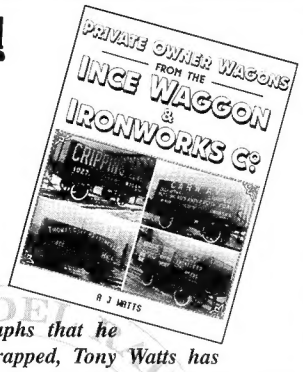

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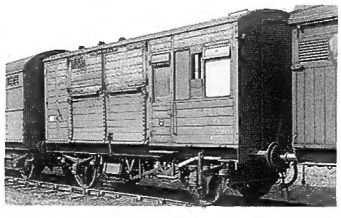

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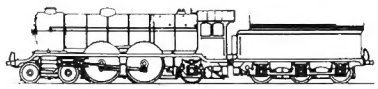

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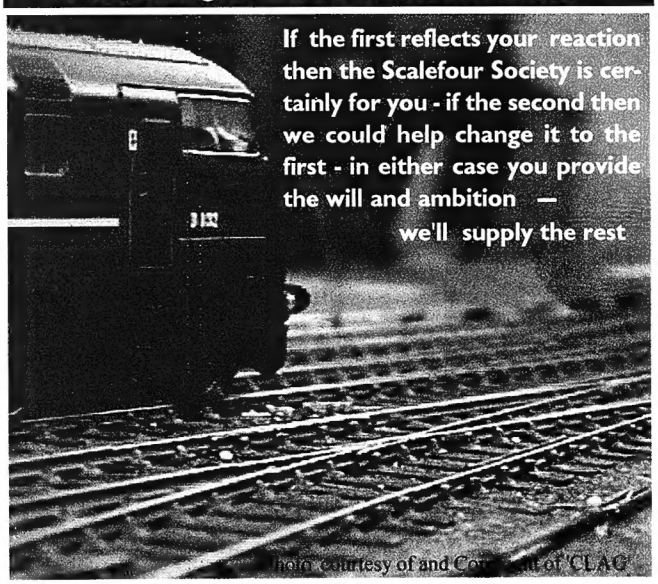

If the first reflects your reaction then the Scalefour Society is certainly for you - if the second then we could help change it to the first - in either case you provide the will and ambition — we'll supply the rest

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by Paul Karau and Chris Turner

This ground-breaking branch line history – the most ambitious we've yet published – chronicles the history and life of the Watlington branch. Running unobtrusively through nine miles of beautiful Chiltern countryside, it linked the small town of Watlington in Oxfordshire to the Great Western Railway's Wycombe line at Princes Risborough. Bypassed by all important routes, the people of Watlington hoped that a railway connecting it to Risborough and thus to London and the rest of the country, would bring about a reversal in the town's fortunes. The townspeople were to be sorely disappointed for neither Watlington nor its railway was ever to have a heyday. But that is much of the charm of the place, and it is the quietness and the almost storybook nature of the railway that attracted the authors of this fascinating and absorbing book to spend many years researching it.

From its opening in 1872 through its very mean years under private ownership, and rebirth under the Great Western, to its closure in 1957, the history of the line is traced in considerable detail, but this is no ordinary railway text. The authors believe in their approach that railway history is not just to do with facts, dates and locomotive classes, but it is also about the people who worked on and used the line, and this account relies very heavily upon lengthy interviews with the former staff and local people. Throughout the book the characters shine through, making it a compelling and most enjoyable read. Lavishly illustrated with hundreds of wonderful photographs, this definitive history of one of Britain's most appealing lines should not be overlooked by anyone interested in railways, local history, or in the way things used to be.

Vol. 1 – The story of the line from 1872-1961, including route description. 248 pages. Casebound. ISBN 1 874103 43 7. £26.95

Vol. 2 – The stations, including a portrait of the junction at Princes Risborough, traffic handled, recollections of the regular traders and even the farmers who used the railway, and an account of Chinnor Lime and Cement Works. 216 pages. Casebound. ISBN 1 874103 46 1. £25.95

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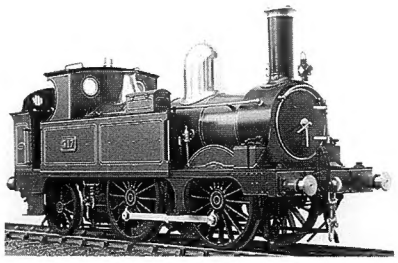

Cover photo: one of Tony Reynalds' new 7mm scale GWR 517 class 0–4–2Ts.

Imagine, if you will

Ask anyone which tools are needed to create a decent model and you'd probably be told a lathe would be useful, a temperature-controlled soldering iron or perhaps a quality airbrush. Any and all of these, once mastered, might make it easier to produce a technically accurate item, but I doubt many will suggest the most important tool required to give the model soul. This vital piece of equipment cannot be bought, acquired by devious means or borrowed from someone else, and no amount of cajoling, unseemly threats or offers of monetary gain will extract it from another's grasp. What am I babbling about? Imagination. If the builder has used this tool to full effect, the results should inspire the onlooker whose own imagination then takes over where the other's left off and the illusion is complete.

Long bleached grass on the railway embankment sways gently to the early evening breeze and crickets sizzle softly in the warm summer air. A heady aroma of creosote wafts from the old timber fencing which has seen better days, and I peer over it to watch a tired and scruffy locomotive listlessly hauling its rake of dilapidated stock over a complex array of pointwork. It draws nearer and I hear the coupling rods clanking, see the wisps of steam escaping from every pore and feel the thump of each wheel lurching over the rusty rails. The ancient coaches kaclack-kaclack as they slowly rattle across the worn joints, and over there a burbling diesel shunter quietly shuffles a motley string of unfitted wagons which ting, clang and fidget their way along a weed-strewn siding. I'm sure I can just make out the faintest haze of black fumes drifting from its exhaust . . .

I'm at an exhibition, utterly entranced by a layout which has captured perfectly the atmosphere of the 'sixties and none of those sounds or smells really exist, neither is there any smoke or steam to be seen, but in my own mind I experience all of them as only a child in adult guise can. Cautiously looking around me just to be sure I'm not the only silly sod with the glazed expression, it is gratifying to note others apparently likewise absorbed. We exchange slightly sheepish grins and one or two wander off to explore other parts of the hall, but I linger awhile reluctant to break the spell.

Suddenly, a passenger express bursts from nowhere and hurtles by, cleaving its smoke into dancing swirls, its whistle shrieking angrily, making the hairs on my neck stand on end. As it disappears into the twilight, the whistle is now muted to a faint melancholy wail as if mourning the end of its kind. A puff of air carries the choking smoke clear and I find the wagons have come to rest by the buffer stops now. The diesel sits silent, its crewmen pause briefly to gaze after the receding express before sauntering casually towards the yard gates, their occasional laughter echoing back across the cutting. Dusk is approaching and peace returns, interrupted only now and then by a lone blackbird singing its heart out from a chimney top. Of course, it's only my imagination – but surely you hear it too?

Martyn Welch

MODEL RAILWAY JOURNAL

Edited by Martyn Welch. Designed by Paul Karau.

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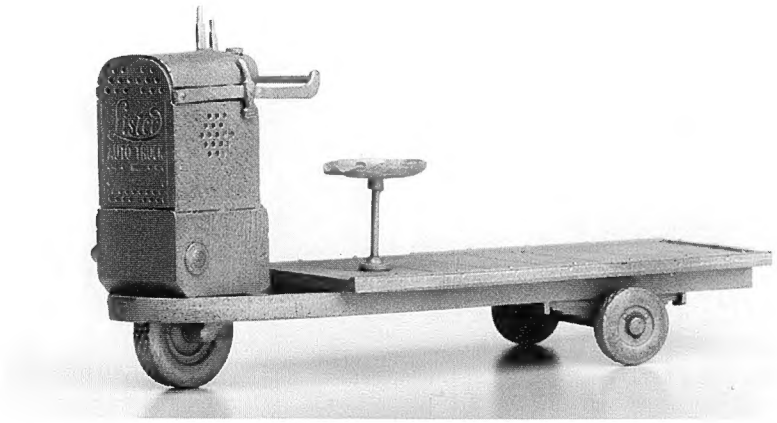
SMALL SUPPLIER FORUM

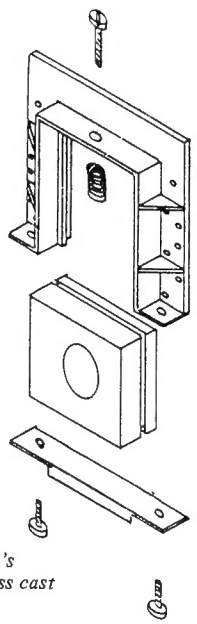


TRADE GRAPEVINE

Bob Barlow has recently added another crop of vehicles to his exclusively 7mm scale CLASSIC COMMERCIALS range. Building on the success of the existing kits based around O Series Bedfords, the long wheelbase dropside/flatbed types have been augmented by two short-wheelbase tippers – one with the standard curved-front bonnet and one with the pug-like austerity nose – and a pair of articulated Bedford/Scammell rigs with flatbed trailers and the same cab variants. The kits for these most common of British haulage workhorses are high-fidelity jobs with parts in whitemetal, resin, cast and etched brass. The standard O tipper costs £39.95, the austerity version (OW) costs £41.95, and the standard and wartime artics cost £42.50 and £44.00 respectively. For scratchbuilders and converters, the artic semi-trailer is available separately at £10.95 and Classic Commercials also does a full set of single-truck wheels (seven in all – two double-rears, two fronts and a spare) for £6.95. Post on all these kits is £1. Another introduction is the little Lister petrol-driven autotruck, which saw puttering service at stations, factories and yards worldwide. It's a straightforward little kit in cast whitemetal and brass, and comes complete with two figures – one driver and one onlooker. It costs £10.95 plus 75p post. The full Classic Commercials catalogue comes in return for four first-class stamps – PO Box 800, West Wratting, Cambridge, CB1 5NB. Incidentally, promised next from Classic Commercials is a highly-accurate, comprehensive 7mm kit for the ultimate and ubiquitous railway hauler, the Scammell Scarab.

The 'N' GAUGE SOCIETY has purchased sole distribution rights for Modelmaster Transfers 2mm waterslide range. Further details may be obtained from the NGS shop at The Retreat, 1 Park Square West, Jaywick, Clacton-on-Sea, Essex, CO15 2NS.

ALAN GIBSON has announced some new 4mm items either recently produced or imminent. First is a locomotive kit for the LMS Fairburn 2–6–4T. A total of 277 were built over a six-year period from March 1945, with several encroaching into Southern territory and down the Tilbury line in Essex. Assorted rivet patterns were used on the side tanks and this kit covers a locomotive group of some 128 examples. Following Alan's now standard combination of etched brass and nickel silver for the chassis, with pewter, whitemetal or lost wax brass castings for the main body components, only the motor is needed to complete construction. Coded 4M158, it costs £99.30. Also new is the LMS 4P 2–6–4T based upon the popular prototype produced between 1927 and 1934 designed by Sir Henry Fowler. All built at Derby, they were typically 'Midland' in appearance and when Stanier took over from Fowler in 1932, the final 30 locomotives were fitted with more modern enclosed cabs. Withdrawals of the class commenced in 1959, the last two disappearing in 1966. Either cab versions can be produced from the kits (Code G4M157 – Fowler, G4M157A – Stanier) which require only motors to complete and cost £99.30 each. Now available is the LMS Jubilee similar in design to the standard version already produced, but with a Stanier 3,500 gal tender instead of the usual 4,000 gal variety. A batch of short firebox prototype locomotives were supplied with this short tender in order for them to fit onto small turntables. This type can be produced from the kit (Code 4M49SS) which is priced at £119.60 and a separate kit for the tender (Code 4M152A) is available at £32.15. A fully detailed lost-wax brass cast hornblock is also announced which will be sold in pairs (enough for one axle) with bearings, screws, springs plus horn strap and will retail at £4.52. In time for EXPO-EM (15th/16th May) there will be a kit for the BR Standard Class 5 4–6–0 costing about £140.



Alan Gibson's lost-wax brass cast hornblock.

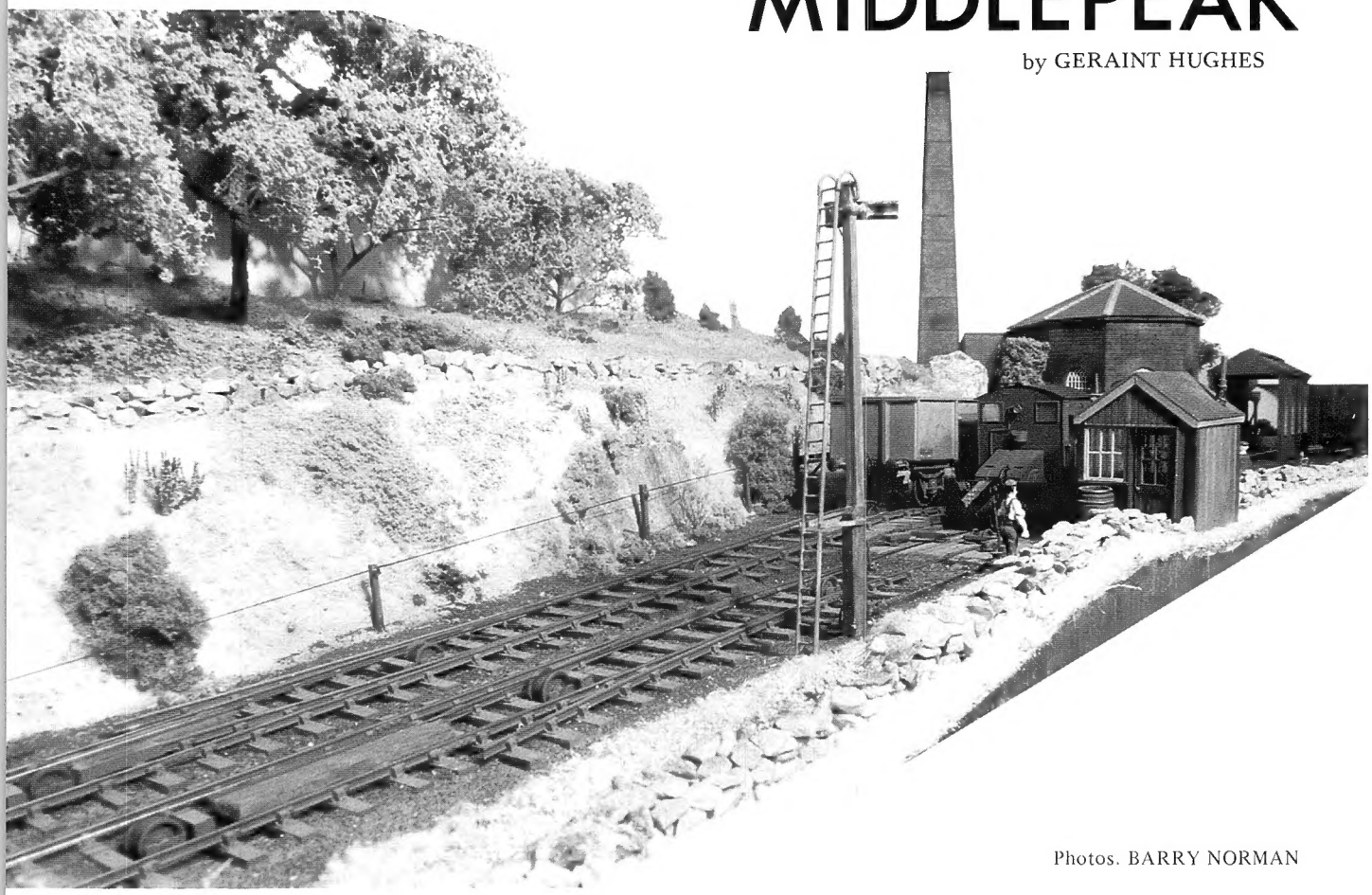
A new name to us is MODEL GRAPHICS who have come up with a novel idea to assist anyone wishing to start scratchbuilding. They offer a selection of 7mm scale drawings showing simplified dimensions of the cab, bodywork, footplate and underframe for a given prototype along with step-by-step instructions for making the components and then their assembly. Measurements of tricky items such as chimney and dome are supplied for turning or they suggest buying in these parts from commercial sources if this seems too daunting. Adding and fabrication of detailing is left to the builder to establish from photographs and other sources, but the basic locomotive should be achievable from the package. A sample set of drawings and instructions for a GWR 1361 class 0–6–0T was sent to us which seemed reasonably straightforward, although we have not checked them for accuracy. Priced at £12.50 for the set, details of this and other prototypes available can be obtained from 75a Duncan Street, Calne, Wiltshire, SN11 9QD (01249 822737).

Martin Bradley at ACME MODEL CO. has sent a sample 1lb bag of 'Liquid Lead' which arrived on the bench with a very loud thud. It is ultra fine lead shot which can be 'poured' into any suitable space inside a model and, with dilute PVA or other glue added afterwards, will set as a solid lump. Due to the fine particle size, the resulting ballast is denser and heavier, thus theoretically using less of it than lead sheet in order to achieve the equivalent desired weight. A pound bag doesn't look much at first – until you pick it up! It costs £6.99 per bag including postage from PO Box 69, Hampton, Middlesex, TW12 3NA (0181 979 0672).

Carl Legg at CPL PRODUCTS has been busy again. He's just introduced two further additions to his growing list of 7mm couplings. This time featuring the Southern Railway, the first kit of lost-wax nickel-silver parts will make up into a pair of working two-shackle locomotive screw couplings and the second kit produces the distinctive three-shackle versions. Each kit has comprehensive instructions, although the exploded drawing says it all really. Also included is an etched fret of assorted buffer beam plates which ensure the hook is a snug fit, no matter the size of hole present in the beam. Priced at £6.75 for the twin-shackle kit and £7.25 for the three-shackle version, they are available direct from Carl at exhibitions and from 4 The Glade, Newbury, RG14 7AT (01635 44001).

MIDDLEPEAK

by GERAINT HUGHES



Photos. BARRY NORMAN

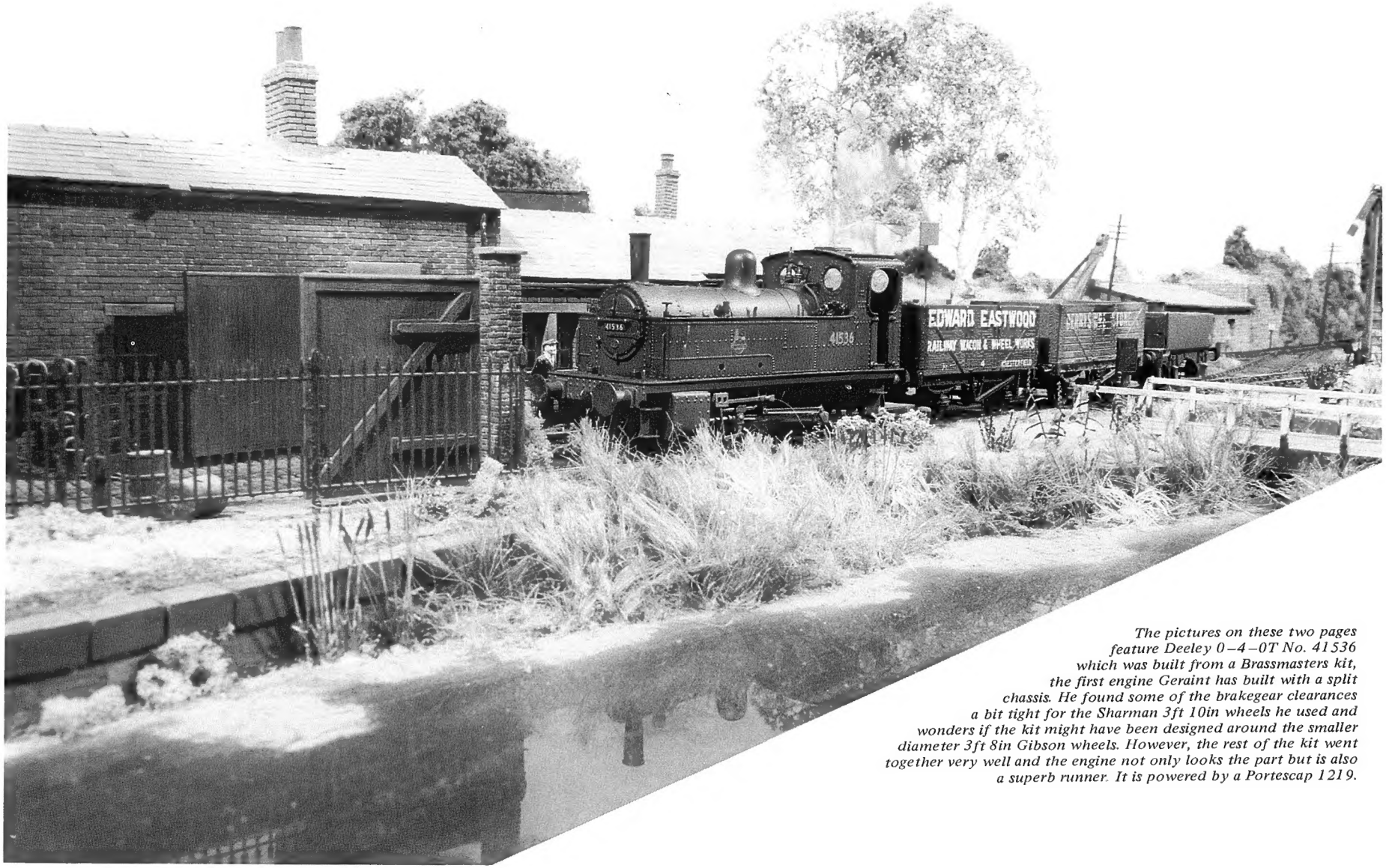
There can't be many layouts around that have had their life prolonged by a 'gentleman's wager'. Back in 1993, with the Wharf scene at Middlepeak largely complete, we made the trip over to Holland for an appearance at Eurospoor. Despite the arctic climate in Utrecht that weekend, the response from the Dutch public was a very warm one, and their interest in the layout and the whole concept of a minimum space P4 project was very gratifying to someone who had spent the previous five years on the British exhibition circuit.

By the Sunday afternoon, the euphoria had resulted in scraps of paper being commandeered for new layout designs. Maybe another High Peak effort, and wouldn't it be nice to model the top of an incline this time. Enter Dave Doe, leader of the Scale-four Netherlands Area Group, with a throw-away comment like "Nice layout, but when are you going to extend it to the top of the hill?" Now I don't usually take such comments lying down, and by the time the layout was being dismantled and loaded for the homeward trip, the wager had been struck. Middlepeak Wharf would be extended to include a small module depicting the incline top, and that man from the Netherlands would spend the next few years proving to the world at large that P87 was feasible by building an exhibition layout. I thought I was onto a good thing!

What followed is history, but I won't spoil the story by giving you the ending until later. This article is really a potted history of how Middlepeak Wharf was extended, the trials and tribulations of building a new piece to a layout that was already 5 years old in exhibition terms. For those of you who haven't read my previous exposé in a bygone issue of *Railway Modeller*, there will be some comments on how construction of the Top differed from that of the Wharf. And then there's the thorny problem of how to make the two look the same 'age' and how we tackled the exhibition operation of this anachronistic exhibition piece.

DESIGN

Those of you who've witnessed operations at the Wharf over the years will recognise that it's more of a might-have-been than a prototype layout. What I'm after is the creation of a piece of theatre for the paying customer, not a rivet by rivet replica of any of the High Peak locations. Thus the buildings at the Wharf are copies of originals from Cromford Wharf, but the track plan is purely fictional and the absence of a run-round loop makes for more interesting operation and intense furrowing of operators' brows! I had thought initially that the Top would be a fairly scale model of Middleton Top, but a quick sketch revealed that this was impractical without dwarfing the main Wharf module. Sheep Pasture was already being lovingly created in far-off Bristol by



The pictures on these two pages feature Deeley 0–4–0T No. 41536 which was built from a Brassmasters kit, the first engine Geraint has built with a split chassis. He found some of the brakegear clearances a bit tight for the Sharman 3ft 10in wheels he used and wonders if the kit might have been designed around the smaller diameter 3ft 8in Gibson wheels. However, the rest of the kit went together very well and the engine not only looks the part but is also a superb runner. It is powered by a Portescap 1219.

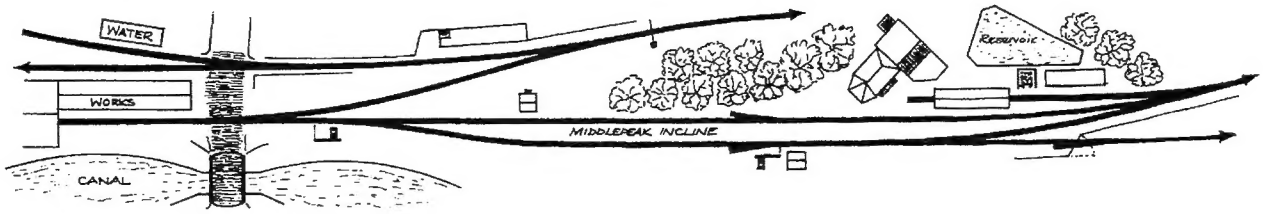
my good friend Robin Whittle, so Middlepeak Top ended up as a very simplified version of a typical incline top, with all the principal features such as the stationary engine house, the engine shed and the water tower in the right places and copies from the Middleton Top originals. The private siding adds a little to the interest and provides the excuse for the second locomotive to appear from time to time.

A few words about presentation would probably be in order at this stage. The Wharf was always designed as a diorama that you could look into, rather than down upon. However, with over 5ft of incline rising at 1 in 8 through the trees, the Top was going to be at chin level for many people, so the decision was taken to drop the height of the whole layout by a couple of inches. Not too much to destroy the illusion, but I think that the overall view works well. I also decided from a very early stage that there should be a physical barrier of a scenic break between the Wharf and Top modules. This is partly because they should be over a scale mile apart, and it helps to hide the reality that they're actually much closer. I also thought it might help the eye in the event that I couldn't get quite the same balance of colours and materials on the new module – after all, it was at least five years since I'd built the first one and my memory of the constructional techniques used was a little hazy!

BASEBOARDS

Whilst the design had determined the size of the Top module, I'd originally planned to do everything on one baseboard. However, it struck me that in presentation terms, having the same depth of baseboard (i.e. about 100mm below track level) for the new section would result in a very unsightly step in the baseboard line halfway along the combined layout. To eliminate this would require a baseboard for the top that was at least 450mm high including the backscene, and such a construction over 2.1 metres long would be heavy and cumbersome. So I've ended up with two boards on the scenic section at Middlepeak Top, each 750mm long by 375mm wide by 450mm high, with a

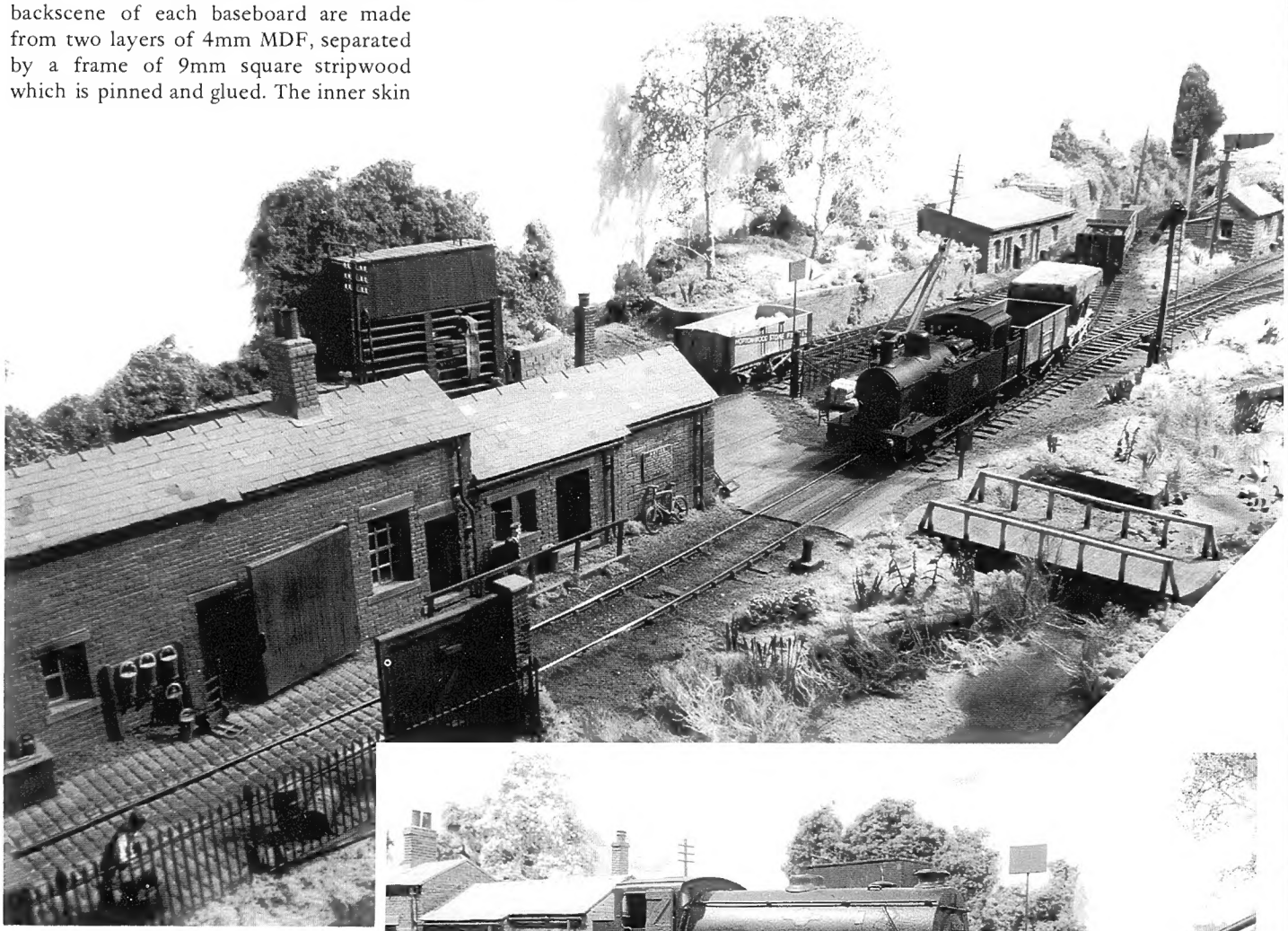
Middlepeak Wharf *Middlepeak Top*



sector plate fiddle yard a further 600mm long.

The Wharf boards were typical 1980s plywood construction, and although quite portable, were not as light as I would have wished by the time all the scenery was added. This time I went for a more lightweight construction, using MDF, which I found to be a much more user-friendly material, quite easy to cut and shape and no after effects from marauding splinters! The sides, ends and backscene of each baseboard are made from two layers of 4mm MDF, separated by a frame of 9mm square stripwood which is pinned and glued. The inner skin is lightened by the cutting of large holes to remove most of the material. Where the fixing bolts and baseboard joiners are fitted, a small piece of 9mm thick MDF helps to give a solid sandwich for more support. The baseboard tops are 6mm MDF, covered where all the track and buildings will lie by a layer of 8mm camping mat to deaden sound. The result is a very light, strong structure which results in reasonably quiet running at home, and almost silent against the background noise of an exhibition hall. The only concession to my 1980s technology has been to use 4mm ply for the outer skin of the front face, again varnished with Antique Oak woodstain to match the finish of the Wharf boards.

The supports for the Wharf boards, despite their spindly appearance, have always been a success story. In my view, there's always been a tendency for layouts to be held up by half a Scandin-



The 3F above was built by Brian Page. It has a scratchbuilt chassis with split frames, Ultrascale wheels, a Mashima motor and specially etched brakegear. The body is based on a Gibson kit. The J94 (right) is built from the excellent Brassmasters kit which was a big step forward in kit development. It is straightforward to build and has lots of options. This one has been built with a lower bunker and oval buffers.

avian forest. As legs bear the weight in compression and there's no torsional forces at play, a 15mm square hardwood section is sufficient to keep everything off the ground, braced by some of IKEA's excellent bookcase crossbraces which are attached by bolts and wing nuts. Unfortunately, in the name of progress, the manufacturer decided to shorten their crossbraces by 20mm or so between construction of the Wharf and the Top. Is there anybody out there with a wonky bookcase?

TRACKWORK

Those of you with long memories may recall that the trackwork on the Wharf was conceived from a demo at IMREX in 1986 using the then new Alan Gibson moulded chairs. Ever since that first foray into the world of detailed trackwork, I've consistently used the same products, now from the C&L stable, combined with phosphor bronze rail and scale thickness plywood sleepers. I frequently get asked about the relative merits of phosphor bronze, nickel silver and steel, but for me it's purely down to appearance. That slightly rusty look is just right for a run-down goods line.

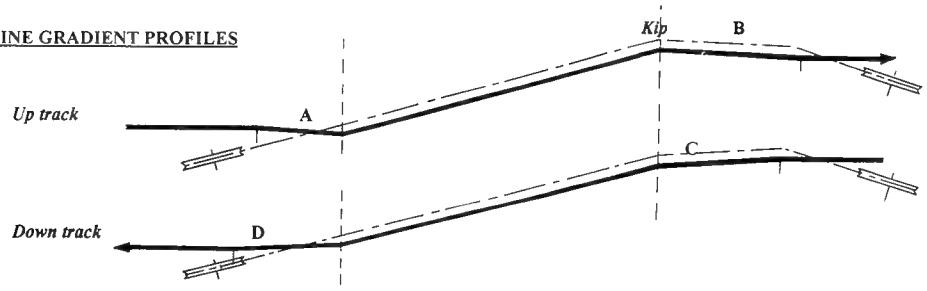
There's nothing new about the trackwork itself at the Top, although I spent quite a time getting the vertical profile right as close inspection of photos of Middleton Top revealed a wealth of undulations associated with the top of the incline, each of which had a specific purpose. Layers of balsa wood were laid and sanded to the correct profile before the camping mat was laid to rest and track laying could start.

There are those who like to build their trackwork separately on a jig and transfer it to the baseboard later, but I like to build everything in situ. I find this helps to achieve smooth flowing curves through pointwork and pays dividends in better operation when completed. Each rail is detailed with joints and fishplates before it's laid and only two rivets per rail are used to secure it, the remainder of the fixings relying on a brushload of Daywat Poly between the plastic chairs and the wooden sleepers. Sounds a bit precarious, but the trackwork on the Wharf has now survived over 12 years of quite intensive use at exhibitions without any loosening of the joints.

Below the boards, pointwork is actuated by operating units designed by my colleague Brian Page and now adopted as a Cambridge Area Group standard. Fulgurex units provide the

The Simplex petrol loco belonged to Middleton Quarry who built their own body on a standard production chassis. The driver sat sideways in the cab which was enclosed on one side. The model has a scratchbuilt Plastikard body on a Tenshodo motor bogie.

INCLINE GRADIENT PROFILES



***Ascending wagons** are parked at point A where the slight downward gradient stops them from running away from the incline foot. They are then attached to the rope and pulled up the 1 in 8 gradient until they reach point B. They are taken off the rope at this point, where the slight downward gradient will run them away from the kip.*

***Descending wagons** are parked at point C against the turn-on scotches and are attached to the rope. When the scotches are released, the downward gradient helps them to start down the hill. When they reach point D at the bottom, they are taken off the rope and the gradient will help them to run away from the incline.*

power, although in future Brian's motor units designed for Brassmasters are likely to do the same job.

THE INCLINE

As the incline was going to be *the* item which gave the layout its signature, I spent a considerable amount of time devising a reliable method of operation for it. In real life, operation of the High Peak inclines was a museum piece in itself, with the working practices of the mid-19th century being used right up to closure in 1967. A short description of these, together with the methods used to represent them in model form (and the inevitable compromises made!) might be of interest.

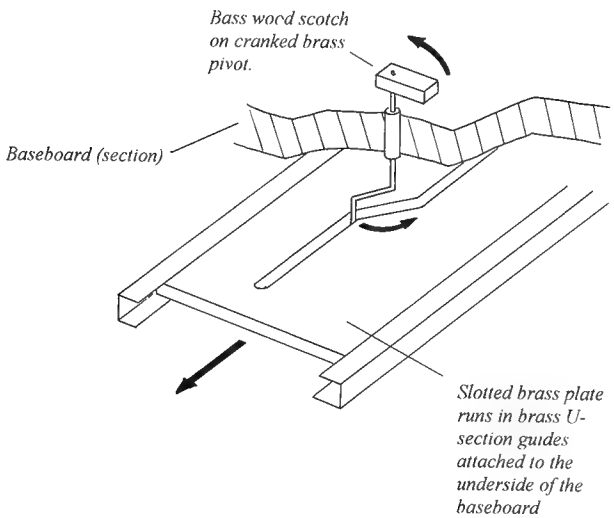
In real life, a High Peak incline was a double-track section of railway running up a hill with a gradient of between 1 in 11 and 1 in 8, and up to a mile long. At Middlepeak we have a 1 in 8 gradient, with a total length of just over 5ft, but the top and bottom are separated by the scenic break, which helps to conjure up a sense of separation between the two sites. There are up and down tracks (with left-hand running similar to a conventional double-track railway) and the wagons are pulled up and down by a continuous wire rope running in one direction only, which on the model is represented by fishing wire. This is a thin braided steel cable with a nylon coating and a supposed breaking strain of 26lb according to the reel, although what this equates to in angling terms is beyond me! It looks just right for the purpose anyway.

Now we have our first problem, because no matter how well the cable looks, it's not going to behave like the real thing. If you look at photos or film of the High Peak inclines in action, it's immediately noticeable how much slack there is in the incline rope, especially just 'downstream' of the attached wagons. It actually sinks between the rollers and at the foot of the hill follows a concave curve to run along the level for a short distance before plunging underground and round the bottom pulley. There's simply not enough weight in the model cable for it to behave like this, so concave curves are out and the whole apparatus has to be kept in tension if the cable is going to stay on the rollers. The tension is also essential to create sufficient friction between the rope and the winding pulley for efficient haulage. So far, so good, but if you imagine how over 10ft of steel cable expands in the heat of an exhibition hall, you'll understand the need for some sort of tensioning apparatus to keep things running true.

Middlepeak Incline itself is a dead straight 1 in 8, with the rope made in two halves joined together by short lengths of three-link coupling chain, to which the chains that pull the wagons are permanently attached. The rollers between the rails are made from N gauge wagon wheels, two turned face to face to give the correct profile and mounted on a 1mm steel axle which runs in brass

INCLINE TURN-ON SCOTCHES MECHANISM

(Only one scotch shown for clarity)

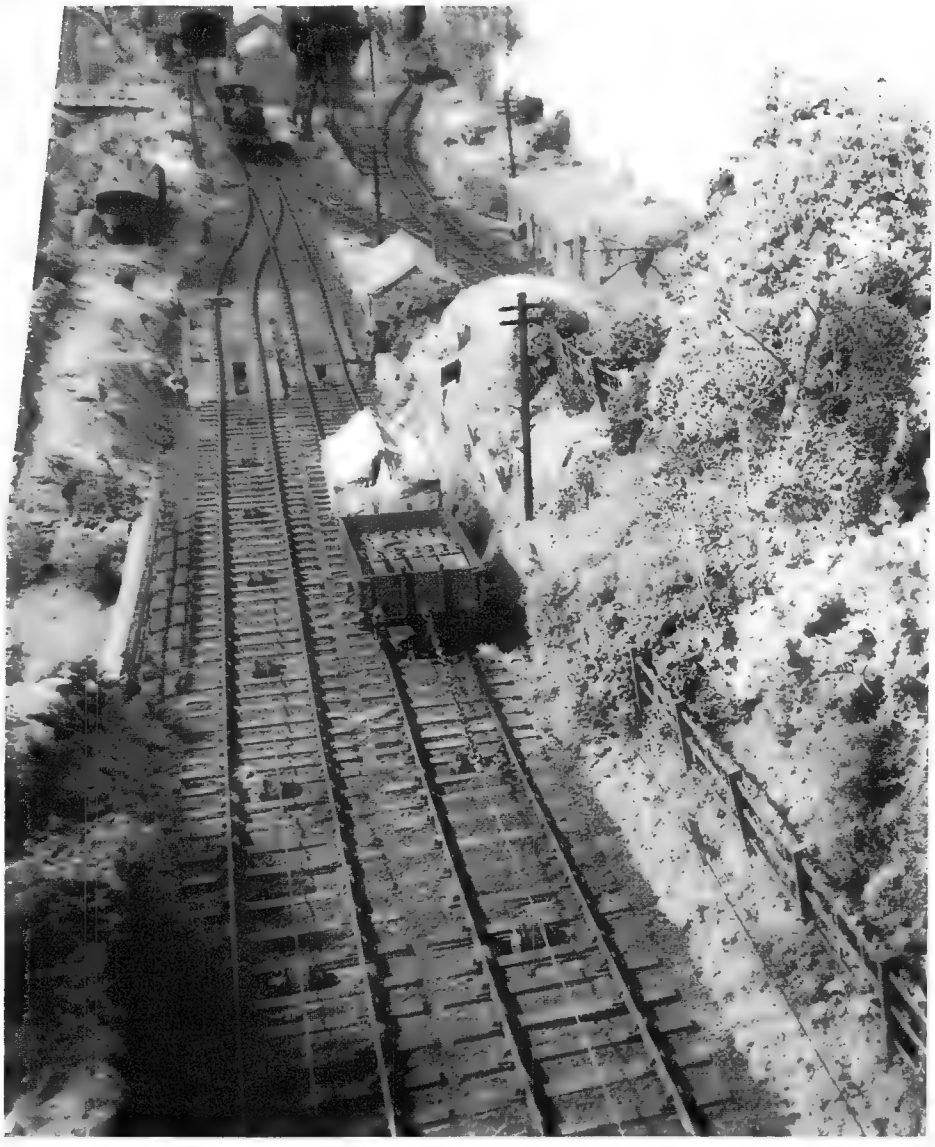

Bass wood scotch on cranked brass pivot.
Baseboard (section)
Slotted brass plate runs in brass U-section guides attached to the underside of the baseboard

The shape of the slots in the brass plate transforms the linear movement of the plate into the rotational movement of the scotch. Careful planning and marking out of the four slots allow the down track scotches to work in perfect harmony!

bearings. At the top and bottom of the hill, the cable runs round large pulleys under the baseboard which were originally intended for washing lines, I believe. Both are mounted on vertical axles which run in ballraces. The top pulley is fixed and powered by a large Mashima can motor and Branchlines 80:1 gearbox with wheel. The bottom pulley sits in a carriage which runs horizontally underneath the track and can be adjusted using an 8BA screw thread. A few degrees of turn on the adjuster is sufficient to maintain tension as the wire expands and contracts. As the incline actually spans a baseboard joint, the cable has to be fitted every time the layout is erected, and short removable sections of track above each pulley help to give access during the 'stringing' process.

So far, so good, but when I got to the point of fixing wagons to the rope, the ingenuity ran out. In practice, the fixing chains should be detached from the rope after each run, but I couldn't see how a reliable method of fixing could be incorporated which would still run round the top and bottom pulleys and look reasonably unobtrusive. My answer – to fix them permanently to the cable at two diametrically opposite points, so that when a run is complete, it's a simple task to advance the cable so the 'up' chain becomes the 'down' chain and vice-versa. In addition, the fixing chain should run under the 'top' axle of each wagon and over the 'bottom' axle and be attached to the bottom drawhook. I simply hook it onto the 'top' drawhook, but the effect is still quite reasonable. My friend Robin Whittle has since used the bottom drawhook to attach his fixing chains, but his excellent model of Sheep Pasture Top doesn't have the concave curve at the foot of the hill to deal with – I tried it on Middlepeak and the wagons derailed every time! Similarly, the same concave curve acts as a perfect uncoupler for Alex Jackson couplings every time wagons are pulled up the hill, so we still rely 100% on three-link couplings, despite our failing eyesight!

The incline top is a fascinating place to stand when a 'run' is about to take place. There are many subtle changes of gradient here, with the up track passing over quite a sharp kip and the gradient causing unbraked wagons to run away from the summit when they have been detached from the cable. Much of the movement of wagons around the summit

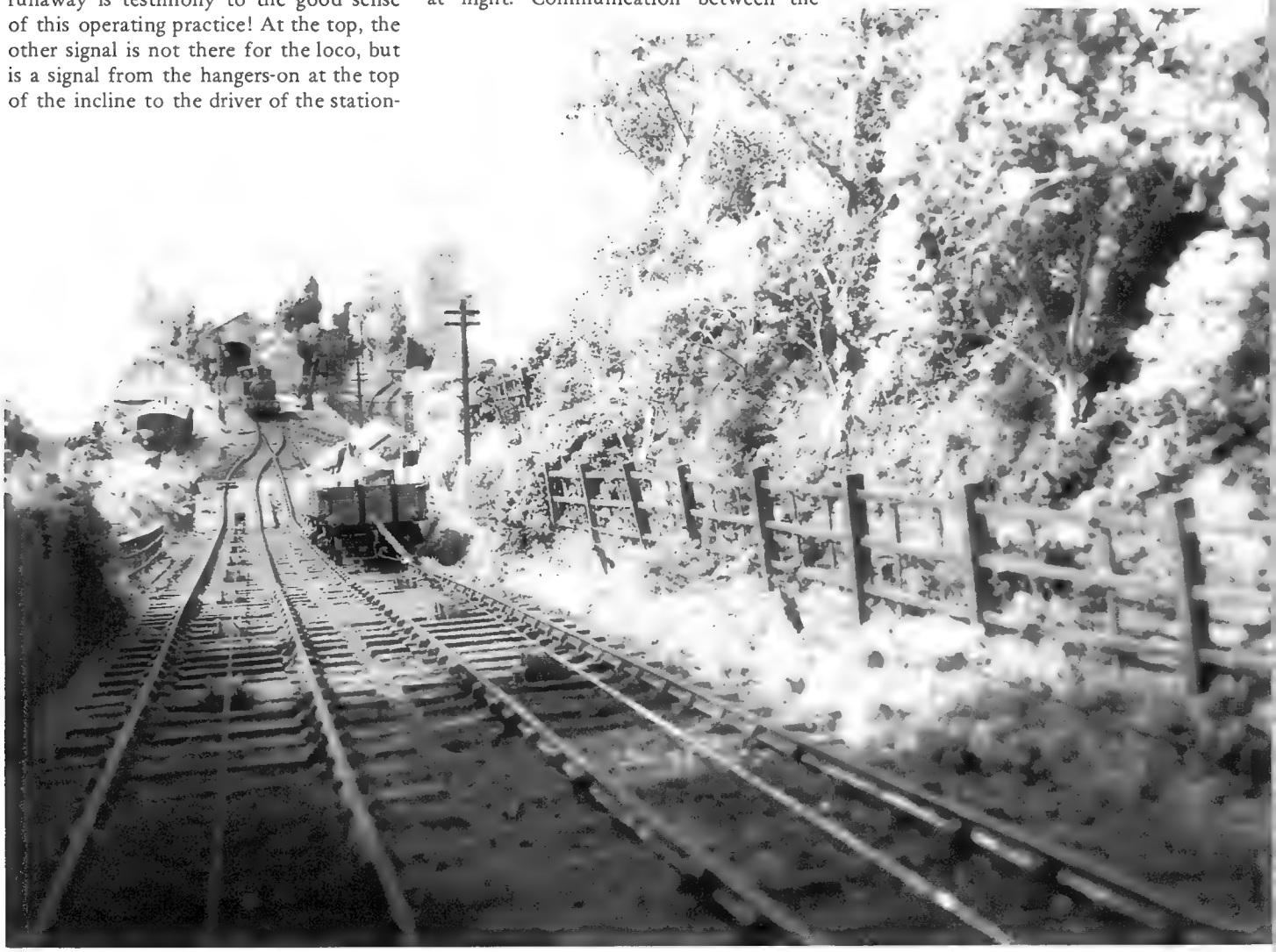


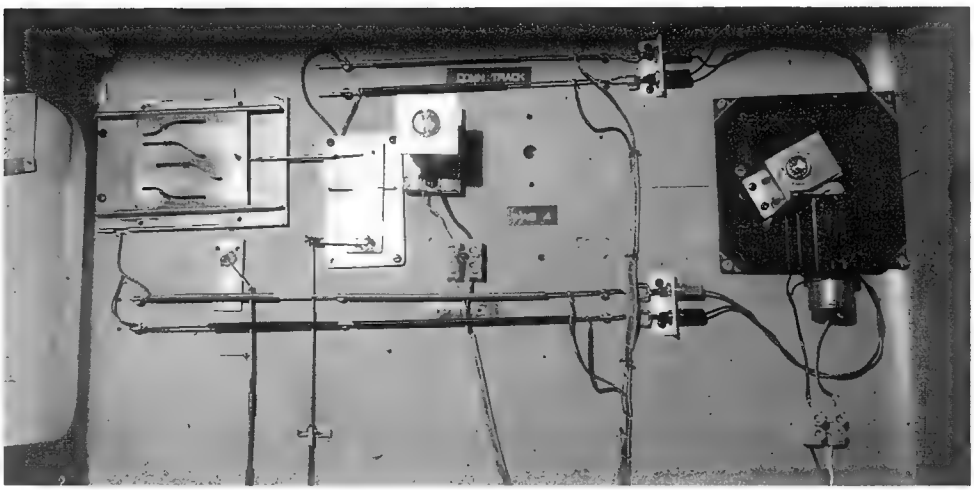
relied on these gradients, pinchbars to get the wagons moving, and wooden sprags pushed between the spokes to brake them. It's a shame, in a way, that we have to rely on locomotives in the absence of working brakes! On the down track, the gradient at the summit points downhill, to give the departing wagons some gravitational assistance as they begin their journey. As they are shunted to the top, they come to rest against turn-on scotches while the rope is attached. In practice, these should be released by a swift blow from the lump hammer of the planesman or 'hanger-on'. On the model, this action is achieved by a complex mechanism designed for my by that master of esoteric devices, David Barham. A flat brass slotted plate running horizontally under the baseboard captures the tails of the spindles on which the scotches are mounted, and the shape of the slots turns a straight backwards and forwards motion into four separate co-ordinated turning movements. It always generates comment at exhibitions, but description is beyond me!

As on the real thing, wagons are attached to the rope in 'runs' of two, with the weight of those coming down being more than those going up. This is helped on the model by the fact that we hand-load each of the open wagons with stone in the Top fiddle yard and empty them at the bottom. With this balance created between the runs, the stationary engine, or the Mashima motor in our case, is simply performing as a brake on the system.

The incline is also fitted with the appropriate signalling, LNWR lower quadrant signals being located at the top and

bottom of the slope. That at the bottom is operated by a lever next to the planesman's hut and gives an indication to the loco driver to move his charge away from the descending wagons. The occasional runaway is testimony to the good sense of this operating practice! At the top, the other signal is not there for the loco, but is a signal from the hangers-on at the top of the incline to the driver of the stationary engine that all is ready for the descent. Both of these signals are rather decrepit and neither carry glass in their spectacle plates, or working lamps, for that matter, as the High Peak Railway never operated at night. Communication between the top and bottom of the incline was provided latterly by telephone, but right up to closure, the old arrangement of dials and pointers, operated by a tensioned wire between them, was still in





The underside of the baseboard for the incline top, showing the sliding brass plate (left) which operates the wheel scotches in sequence, outer blocks first followed by the middle ones. The square to the right of the crank base is an uncoupling magnet and the horizontal pairs of wires are busbars for the tracks above. The incline motor on the right is an 1833 Mashima fitted with a flywheel and drives through a Branchlines gearbox. It is held in position by the dark-coloured removable baseplate screwed to the underside of the board.

use, and I have replicated these although they are yet to be connected.

BUILDINGS

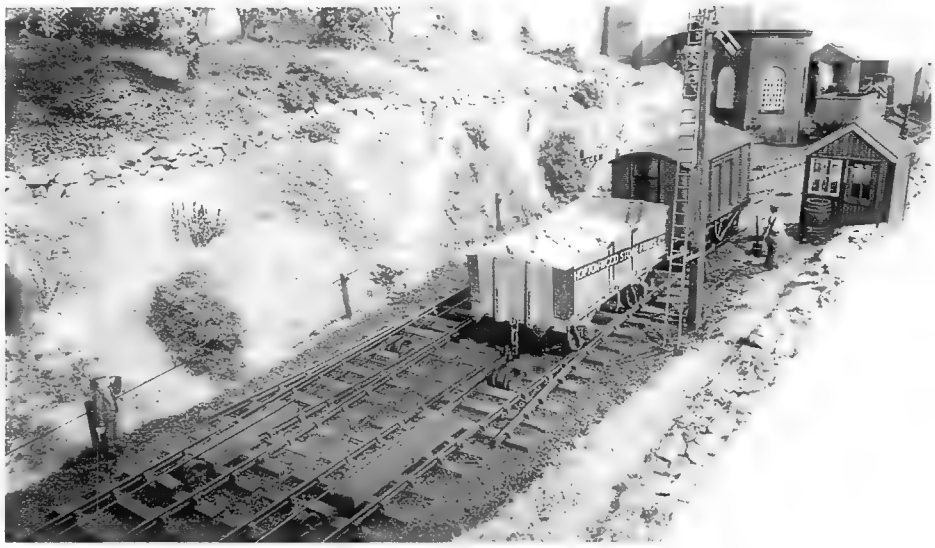
The Top diorama doesn't contain many buildings, but a considerable amount of time has been spent on the engine house in particular, as it contains many features which are uniquely associated with the High Peak line.

All the buildings on both modules have been constructed entirely from styrene sheet and strip, using techniques developed from articles written by the North London Group covering their Heckmondwike and Bodmin projects. In the case of the engine house, the original at Middleton Top is still intact, complete with its stationary steam engine running on compressed air. Easy for research information, you might think – true, but this prompts me to incorporate every last detail I can into the model, which explains why it took over 12 months to complete!

I started by marking out all the parts on millimetre graph paper to ensure accuracy and squareness, then sticking the graph paper to 20-thou Plastikard sheet before cutting them out. The walls comprise an inner and outer skin, which are separated by an Evergreen strip framework (usually 156 thou x 60-thou) to produce a rigid structure. Apertures are made larger on the inner face to allow later installation of complete window and door units once the shell has been detailed and painted.

Now to the time-consuming bit. All of the stonework and brickwork is applied using individual pieces of Evergreen strip cut to size. This is where the graph paper pays dividends, as you can use the grid to keep the courses straight and to determine where the vertical joints should be. A further development we are now trying is to use a CAD package to draw out the stone or brick pattern as a more accurate template.

Why bother with all this?, you might ask. Well, the truth is that on any building, even the simplest box structure, any form of sheet brick or stone material is very difficult to cut and align at corners, plinths, quoins or window and door



The O3 belongs to Brian Page. He improved the impressive Mainline body which runs on a scratchbuilt split frame chassis. This loco won the Scalefour Society's Deputy Chairman's cup.

reveals. With all the complexities of the engine house, its arched windows, sloping roof and three-sided end, the stone by stone method is visually the best, even if mind-numbingly boring for most of the time! The stones are cut from 30-thou strip in various lengths and depths and their surface is distressed with the point of a discarded scalpel blade once they have been attached. A good scrub with a fibreglass brush and they are ready for painting. Bricks are attached one course at a time, made from 30-thou x 15-thou strip, and the vertical joints nicked with the scalpel blade. For adhesive I use Mek-Pak, which floods through the graph paper to bond all three layers together.

Windows were etched for me some time ago by Danny Pinnock and the slates and Collywestons on the roof were drawn up on the CAD and printed on cartridge paper before they were cut out and stuck on with Uhu. My favourite bit? Well this had to be the boilers and associated pipework for which that High Peak aficionado Alan Rimmer provided me with an excellent detailed photograph. Unfortunately, the same photo revealed the herring-bone pattern to the brickwork on the floor in front of the boilers. So this was laid, brick by brick this time, and not long after I'd completed a similar 'full sized' job on the patio. Rough justice!

After the engine house, the other buildings were quite straightforward. The planesmen's hut is actually a standard LNWR 8ft square ground frame cabin. The engine shed is a shortened version of that at Middleton designed from photos and oozing with decrepitude. I could have modelled it in post-1963 condition after the roof had been blown away, but it didn't have the same charm then! The water tank, an old boiler on a cast-iron frame, is again pure Middleton Top, and a second and better version of a project I first tackled 20 years ago.

SCENERY

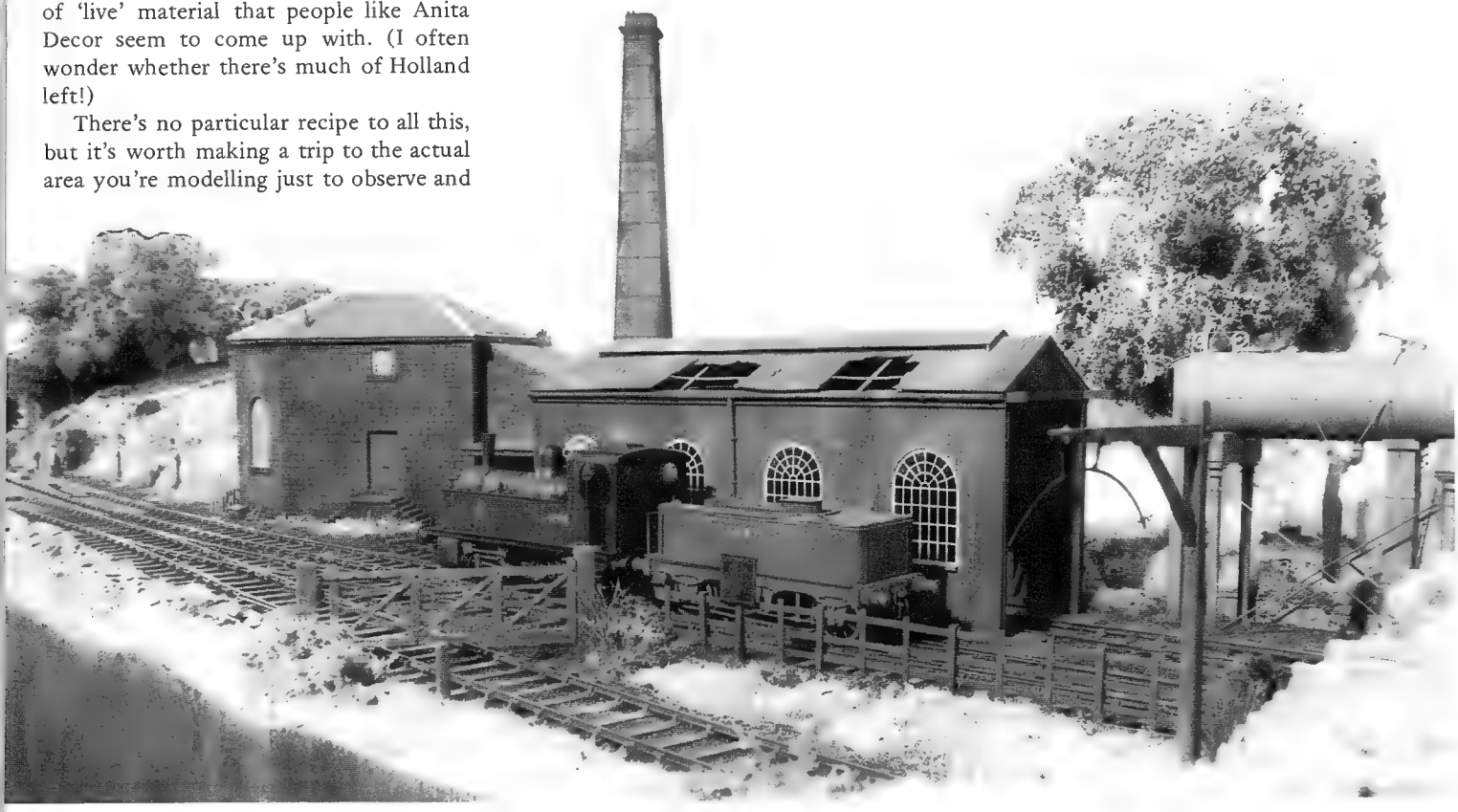
There's nothing novel in the groundwork for the scenery – expanded polystyrene covered with Mod-Roc. On both the Wharf and Top modules, the basic grass texture is surgical lint, in my case applied face up because I'm too much of a coward to risk the potential damage when you lay it face down and pull off the backing! However, when it came to the Top, I became aware of a terrible fate that is about to befall the hobby – the demise of surgical lint! Seriously, I had heard from a friend who buys dressings for the National Health Service that lint was a thing of the past. When I bought the last lot over two years ago, the staff at the local Boots had to scour the shop for some and couldn't understand why I wanted the old-fashioned stuff and not the more up-to-date dressing that cleans as it protects as it . . . Ah well, by the time I build the next layout, some sage such as Messrs Norman or Welch will have identified a suitable alternative . . . please?

However, the lint is only the start, and once it's coloured with poster paint (yellows and light greens predominate, with a hint of burnt sienna), the fun can begin. I believe that the trick in producing convincing vegetation and undergrowth is to vary the colours subtly, but

to include as much variety in texture as possible. When the Wharf was built, textures were based on Woodland Scenics materials with sisal string and various items from Scalelink etches to decorate the area around the canal. Now we seem to have a much greater variety of materials to play with, particularly puffer grass, artificial furs and the numerous bits of 'live' material that people like Anita Decor seem to come up with. (I often wonder whether there's much of Holland left!)

There's no particular recipe to all this, but it's worth making a trip to the actual area you're modelling just to observe and photograph the vegetation on railway embankments. It may sound obvious, but I, for one, was surprised at the difference between the gritstone and limestone areas barely miles apart on the High Peak.

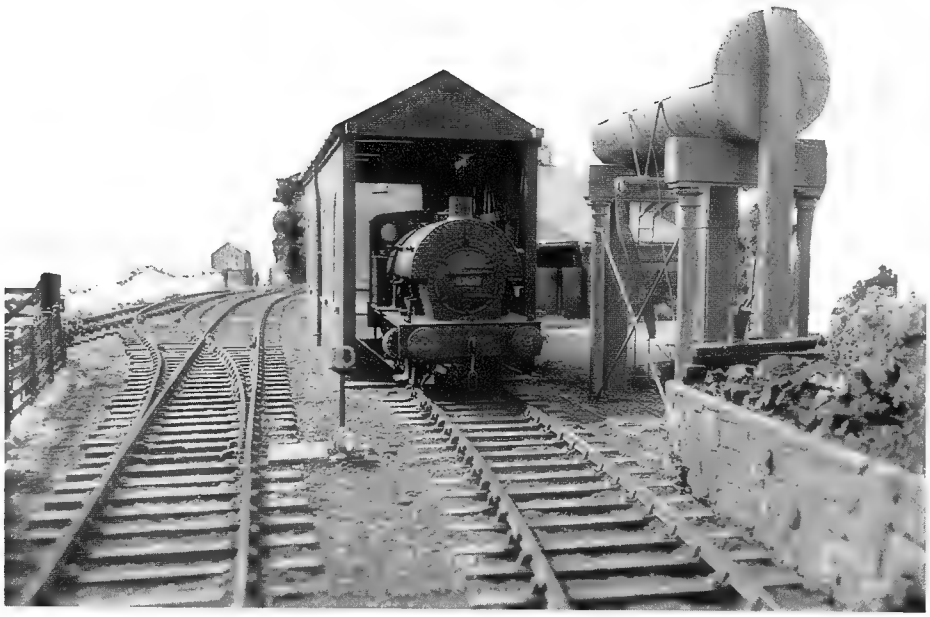
At the back of my mind was a fear that once completed, the colours on the Top would take some time to weather to the same extent as those on the Wharf. In the end, I got a fairly good likeness straight from the palette by mixing colours a little lighter and thinner this time round. What has undoubtedly helped, though, has been the decision to repeat the final stage of detailing over the whole layout at the same time. In par-



This Kitson-built LMS 0–4–0ST has a modified Falcon brass body with a new boiler and a scratchbuilt chassis fitted with Sharman wheels and a 1219 Portescap. The body is arranged to assemble around the motor.

ticular, careful use of the winter puffer grass from Heki, which is almost grey rather than green, helps to tone down the colour of the underlying lint, whilst giving the whole embankment some necessary variety in texture.

The other material I've tried this time round is the 'sea moss' plant for tree-making. I first spotted this at Eurospoor some years ago (another bit of Holland that's found its way into the hobby) and it's now generally available over here. However, be choosy when you buy it, as the shape of the stems and foliage can vary tremendously. Some of the larger cuttings can pass as small trees in 4mm scale, especially where the tree is to be one of a group. For the larger trees, I have built wire frames and used the sea moss in clumps supplemented with finely ground foam to build up the foliage. The advantage of this technique is that you end up with a light canopy that you can genuinely see through. Be sure to treat your sea moss – I use a 10% glycerine mix with the cuttings left to soak overnight and then dried naturally before any painting.

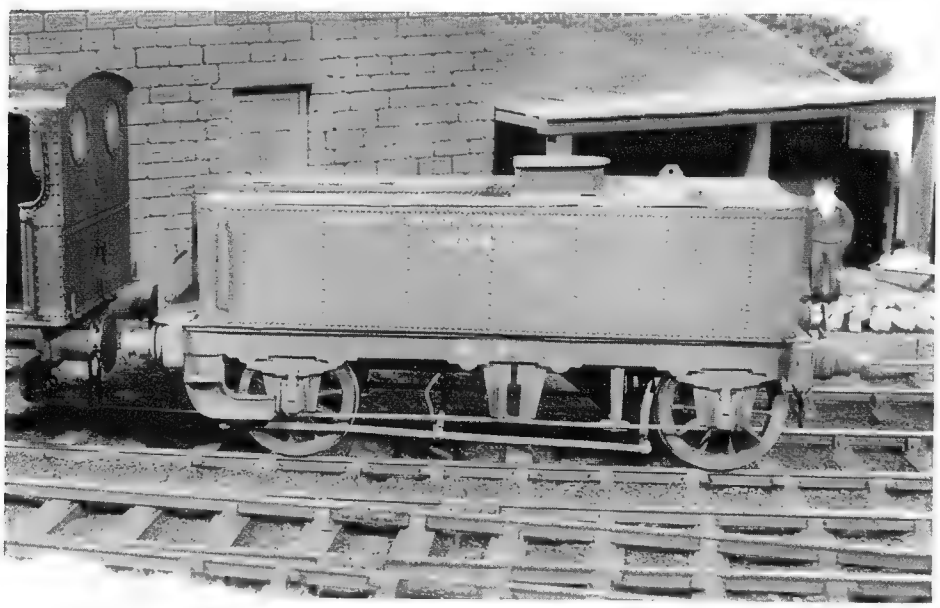


OPERATION

Despite the simplicity of the track plans at both the Wharf and the Top, the layout is actually a lot of fun to operate at exhibitions. There is an overall plan to things, in that we know which wagons should go where and we keep track of which are going 'up the hill' and which are going 'down'.

Having said that, there is no fixed sequence and no planned co-ordination between activities at either end of the incline. When the Wharf operator has set up an ascending run, he restores the signal to danger, which switches on an indicator light on the Top panel. The Top operator also runs the incline, so if he's not quite ready, the Wharf man will find something else to do until he is. Despite the fact that there are only three sidings on the whole layout, there are no fewer than four fiddle yard exits, so there's always something to move to create interest.

The addition of the Top has increased the requirement for motive power, particularly when the lack of operator resources restricts the available roster. Over the years, Robin Whittle and I have covered most of the High Peak locos in model form, with recent additions such as the Brassmasters Deeley and a scratchbuilt Caledonian Pug to complement the established range of J94s, North London Tanks and Stanier 0–4–0Ts. However, the large stud of locos does allow us to pick and choose the best runners for exhibitions and leave repairs and maintenance (which are thankfully very minimal) to the peace and quiet of the workshop rather than the hectic atmosphere of the exhibition hall.



This model is based on one of the Cromford & High Peak tenders used to convey water to the top of the incline for domestic and boiler needs. The supply came from a spring. This vehicle was an old Webb 1,800 gallon tender with the centre wheels removed for the incline. The model is an adaption of a George Norton kit.

CONCLUSIONS

So there we have it. Nearly ten years after its first exhibition appearance, Middlepeak Wharf is still performing well and is now far more of a complete exhibit with the addition of Middlepeak Top. When I set out to build the layout, the idea was always to portray as much of the operational eccentricities of the High Peak line as possible and to present it as an inform-

Continued on page 97

SPRINGS, BOXES & PIPES

With an early period wagon, photographic information can be scarce and even drawing may not solve certain problems. With no kit available at the time, PETER SQUIBB agreed to build an unusual vehicle from scratch and here describes three elements of construction which needed special attention:

Much has been written on freight vehicle modelling in all the magazines, and I have absorbed a lot of it. The writers have stressed that there is more to the common four-wheeled wagon than is initially apparent and they will get no argument from me.

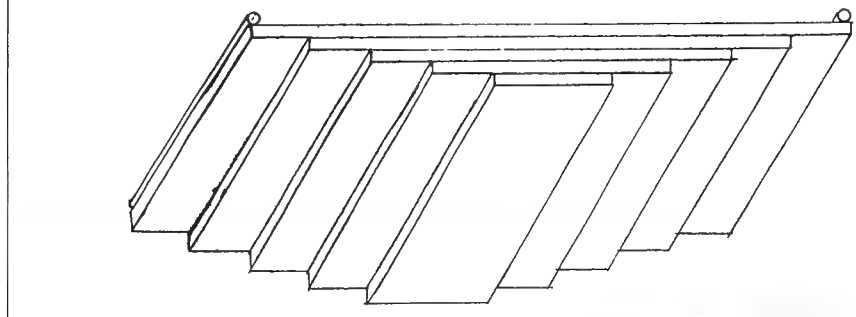
For reasons that are unaccountable two years on, I volunteered to construct a London & South Western Railway carriage truck for the Southampton Area Group's new P4 layout 'Southwark Bridge'. The South Western Circle provide a drawing *(available to members)* and I was assured that no clear photographs, by which devotees of that railway could compare and criticise, had been found. There is little that is novel in the construction, but the areas where I may have departed from traditional thinking are the springs, axleboxes and vacuum pipes, so these will be described in some detail.

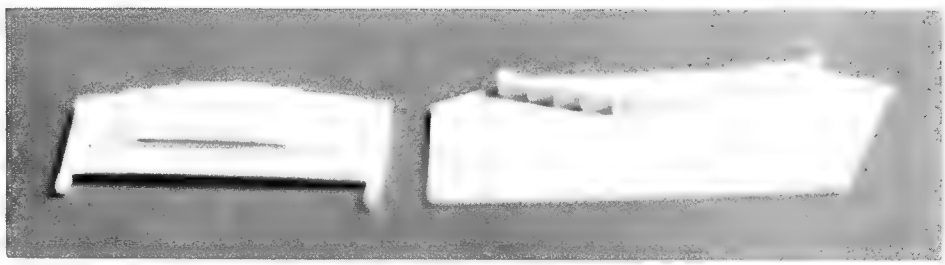
I approach the top and bottom of a wagon as two separate exercises. The upper works, mostly styrene with the occasional metal fitting, I consider to be modelling; the undercart, all brass or nickel silver, apart from the wheel centres and, in this case, the axleboxes, is engineering. Consequently, in my ongoing search for a proper job my C.V. gives my hobby as 'model engineering'. The carriage truck has two floors, one plastic and one nickel silver. Making the nickel floor a snug fit between solebars and headstocks means that no fixing between body and chassis is necessary and they can be pulled apart at any time, even when finished and in service, should repairs or adjustment be required.

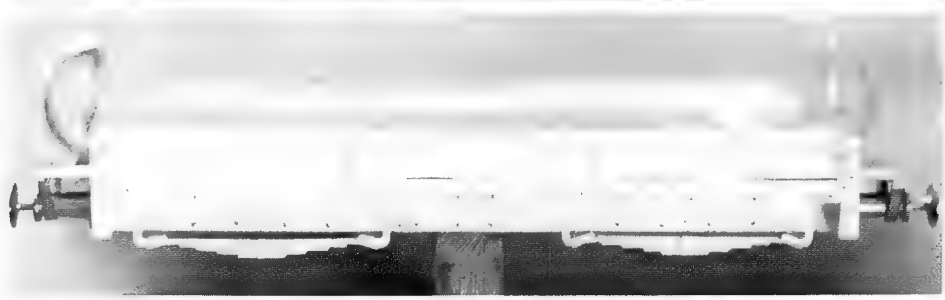
I am aware that several ranges of spring/axlebox/axleguard assemblies are available, but sending for lists of each, then trying to identify the correct type (usually by written description rather than picture) and then ordering what might or might not be suitable, seemed a trifle long-winded. Many such offered by the trade are not available without so-called W-irons, and getting rid of them to use with compensation units would involve more time – hence the decision to scratchbuild the things.

From a piece of 10-thou styrene about an inch wide, five pieces were cut the length of a spring leaf and then laminated so that each was centrally disposed with its neighbour. A *very* slight bow was eased into the construction as the solvent dried. A length of plastic rod was stuck to the upper ends of the layer, but I have found that Slater's rod is more brittle than their Plastikard, so I made the short lengths of rod by twiddling and stroking a 40-thou square piece of genuine styrene in a fold of emery cloth. The accompanying sketch should illustrate the assembly so far.

Fig. 1 (not to scale)







One end of the piece was cleaned up and squared off. Incidentally, needle files are available in 'Cut 0' which is coarser than the normal 'Cut 2' used for metal and which therefore are much preferable for plastic. The laminated assembly was cut through 1.5mm from the tidied end. This was then stuck to another piece of 10-thou sheet and, when dry, the sawn end filed smooth and the overall dimension checked. The required measurement is 1.3mm – the width of the spring. The backing sheet was trimmed to the profile of the spring laminations, except that two pieces were left protruding at the ends. These are the inner suspension links. The strap around the centre of the spring was added from microstrip. It may be worth mentioning that added detail like this is easier to handle if stuck on over length and trimmed to size when dry. This looked fairly acceptable, so three more followed and I moved on to the J-hangers.

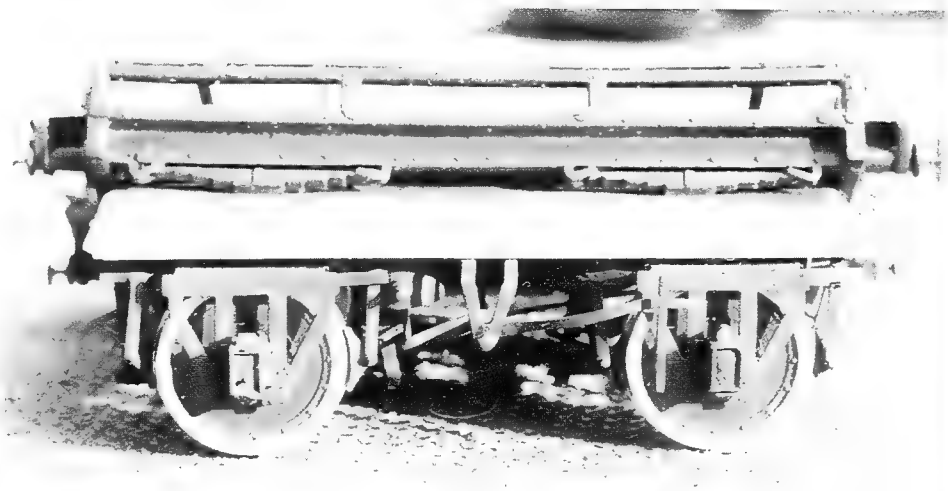
Evergreen 3/32in Z-section styrene had one flange removed and the remaining sharp corner scraped to produce a radius. Eight slices were cut 1.0mm long and these were stuck into nicks filed in the underside of the solebar. The multiplicity of simulated bolts on the solebar (if accurately located) are the

reference points for the hanger positions. Once the hangers were firmly in place, the springs, with their integral inner links, were attached. The outer links were added from microstrip. How many whitemetal castings give you individual components here? The simulated bolts are represented by lengths of plastic rod welded into holes and this is where I discovered the brittleness problem referred to earlier. A number have broken off flush with the surface and have had to be replaced. The new ones are of brass wire to prevent recurrence and will be used in future. This also gives a wider range of diameters than is available with Slater's rod.

The axleboxes were also built up from styrene. From the drawing I deduced the boxes as having dimensions of 10in high by 7in wide by 8in deep. Four blocks were prepared measuring 2.8mm × 1.8mm × 2.4mm. Four pieces of 10-thou sheet were welded to the top, bottom and sides, so that they were flush at the rear and proud at the front. The front was filed down until a slight lip was left to form the recessed front of the prototype. Two bits of rod in holes were the bolts again, and a piece of 80-thou rod sawn down the middle became the arched top and bottom of each box. A recess was filed in the top rear of two boxes to accept the spring as the suspension unit rocked. Holes in the back of each box allowed them to sit over waisted bearings. I admitted defeat and eventually omitted to even pretend to model the radial slot in the axlebox cover which allowed it to spring sideways for examination or filling.

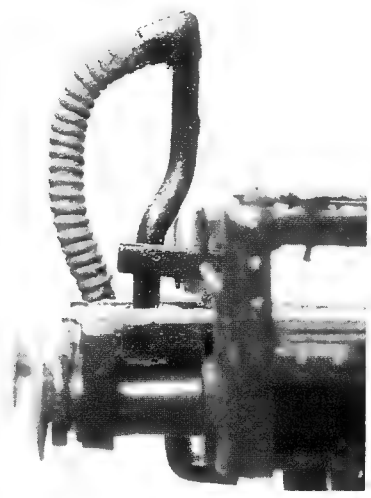
The vacuum pipes on this short wheelbased carriage truck were, at first glance, quite conventional in shape and position, but had this been the case, they would have been very effective obstacles to the loading of road vehicles. Consequently, they were equipped with a special joint at headstock level which allowed them to swing sideways and down through 90 degrees. I have never been very happy with commercial vacuum pipes. The bits of bent wire with another length of finer wire wound around it are a non-starter, and look nothing like the real thing. The cast variety are very much better but the casting process often means they are oval in section and the removal of any flash on the hose part will inevitably mean damage to the 'wire wound' effect.

The pivoting joint meant a scratchbuilt effort for this vehicle, so some thought was given to producing a reasonable reproduction of the real thing. Examination of a conveniently parked wagon revealed that the hose is only slightly larger than the pipe to which it is fastened. The hose measured approximately 3 inches ('approximately' because of the corrugations). I found that 30 amp fuse wire is 0.8mm diameter so this became the pipe which on the real thing ran the length of the wagon. It turned up at the headstocks. On most model wagons the centre portion of this pipe is missing which would make creating a vacuum to take the brakes off a trifle difficult. My carriage truck is no different, the pipes bend under the headstock and go no further.



The pivoting joint is represented by a piece of 1/16in square brass. It is not clear from the drawing if this was square or round. I opted for square as it is easier to drill to take the pipes, but concede that round is more likely to be correct. The upper part of the vacuum pipe involved a lot of work (and several disasters) until an order of procedure was established. It went as follows:

These South Western pipes had an elbow at an acute angle at the top so they were formed by preparing a sleeve from 1.5mm OD brass tube. It was drilled in the lathe to slide on a piece of 0.8mm copper wire, and with the drill still inside, was turned down to 1.1mm OD. A 3.5mm long piece of this very thin-walled tube was soldered in place halfway along a 30mm length of the 30 amp fuse wire. While the iron was handy, the wire to one side of the tube was tinned with solder, taking care that it was an even coating.



The spiral reinforcement on a real vacuum hose is not very thick and is well spaced out, i.e. not like some commercial offerings. Five amp fuse wire at 0.2mm is too thick. I found some multicore telephone cable that had an anti-interference screen woven around it. It was made of tinned copper and measured fractionally over 0.1mm, so was deemed more suitable. Three lengths were soldered to the tinned end of the 0.8mm wire. They were then wound very carefully, checking consistently for any twists, until the brass sleeve was reached. The reason for using soft copper for this is now apparent. It stays put and does not spring back as harder metals would.

Now came the clever bit. Two of these windings were removed, leaving a consistently spaced spiral. Some flux was applied very gently and a hot iron held at the very end of the 0.8mm wire. It took a few seconds but then the wound reinforcement was fixed in place. The untidy end with its lumpy solder and superfluous windings could be cut away.

Halfway along the brass sleeve a notch was cut with a square needle file. The file was rocked as it was stroked to give a notch angle of 120–130 degrees. Metal was removed until almost all the copper was cut through. It can only be bent once; any more and we have two pieces instead of one. When bent so that the notch was closed, a touch of solder added strength and filled the gaps. Other vacuum pipes had no elbow joint, simply a tight U bend which makes modelling them considerably easier.

The joggle in the upstanding pipe was done with round-nose pliers, but using the same tool on the 'flexible hose' was disastrous. The wire reinforcement, so carefully applied, was totally ruined. The eventual solution to achieving the curvaceous form of the hose was to shape a piece of hard wood and then to ease the bend around it with the fingers. Using flexible copper wire for the flexible hose made considerable sense.

Detail was added with bits of brass strip and wire and the assemblies super-glued to the headstocks. On this wagon the vacuum pipe did not change sides under the floor so at one end it is to the left of the coupling and at the other end to the right.

During the construction of this vehicle I was introduced to Permabond cyano acrylate by the ever helpful Dave Smith of Cove Models. It comes in several consistencies, is expensive and very effective. I fully recommend it.

Fitting Alex Jackson couplings always causes ill-feeling, i.e. it makes me feel ill. They should be installed as soon as wheels and buffers are in place, before all the brake gubbins. It seems I will never learn. Our previous Editor once remarked that forming the hook is the fiddly bit as far as AJs are concerned, but I disagree. Fitting the thing to the wagon is much worse. It is useful to remember that once aligned (central and 10mm above rail level) the hook only moves two ways; to the left (as you look at it) to couple, and downwards to uncouple. This means that it can sit touching any brake levers etc. that are on the centre line of the vehicle as long as they are on the correct side.

To eliminate one variable in fitting, I ignore the mounting hole in the suspension unit and solder directly to the metal floor just inside the headstock. By incorporating two more bends at the fixing end, the disposition of the hook can be determined at the forming stage. One bend is upwards at 90 degrees, the other about 4.5–5mm above, to left or right, again at 90 degrees. This means that when adjusting for length, the hook remains correctly aligned. My droppers are soft iron wire from Haskins craft shop, which is well worth investigating by the modeller if there is one in the locality. The wire is 0.9mm dia. and is found in the flower arranging section. I flatten one end in the vice and then saw a little slot in the flat bit. This is hooked on to the coupling wire in situ and held with thick super-glue.

Simple (joke!) four-wheeled wagons I find a pleasure to build but they are very time-consuming and it is arguable whether the finished article is worth the hours expended. Kits are supposedly quicker but that is only true if a lot of corrective work is not needed. However, there are other factors in the equation. The satisfaction level is high in scratchbuilding and there is no kit for this particular vehicle. I understand that 'Southwark Bridge' could do with about a dozen of them – and then there's the long wheelbased version. A kit is definitely called for.

My thanks to Chris Wesson for the superb paint job.

Author's Note:
Since penning this, D&S have produced a kit for this wagon and its long wheelbased brother.

MIDDLEPEAK *continued from page 94*

ative entertainment for visitors to exhibitions. I couldn't have achieved that without the many people who have committed countless hours to research on the High Peak line and given us a graphic description of it through their books, photographs and reminiscences; people like Alan Rimmer, John Marshall, John Morten and John Holroyd, and those such as Andy Pollock and Ken Harwood, who as Derbyshire County Council Rangers have introduced many thousands of visitors to what remains of this railway today.

For me the culmination of all this was an invitation to take the layout back to its roots in June 1997, thirty years after the line had closed, and to join in the celebrations at Cromford Wharf with these people and many of the line's former employees. We will continue to do our bit by trying to entertain and inform the public who come to see it, engaging those who watch as we describe the workings of the incline or one of our favourite locos.

And what happened to the wager? you may ask. Well, happily for all of us, one of Middlepeak's first outings in its new form was to Leatherhead in 1996 for Scaleforum, where I was very surprised and honoured to receive the MRJ Chalice from Bob Barlow. Across the other side of the room was that man Doe with his soulmates from SNAG and his P87 layout Portiershaven, proving to one and all that continental finescale modelling is a practical proposition – a touching end to what has been a very pleasing piece of modelling for me. As ever, there are plenty of people to thank, including my regular crew, Robin Whittle, Brian Page, Alan Browning, Arnoud Krous and David Barham, all the lads at the Scalefour Society Cambridge Area Group and countless exhibition managers who, through their invitations, have given us many happy weekends on the end of the shunter's pole.

As Middlepeak nears its 100th exhibition day (which represents many thousands of scale tons of stone chippings moved from one end of the layout to the other!), it's time to think of what to do next. I'll now own up to being brainwashed by the P87 Thought Police (Messrs Doe, Rice and Harrap) during a very pleasant weekend at the recent Den Bosch exhibition, so something a little bit out of the ordinary is taking shape in the depths of the Fens. No more clues at this stage - wait and see, but it's strange that these things always happen when I go to Holland! But I suspect that my modelling endeavours will revert to the Cromford & High Peak at some stage in the future. Hopefully, that will be another story!

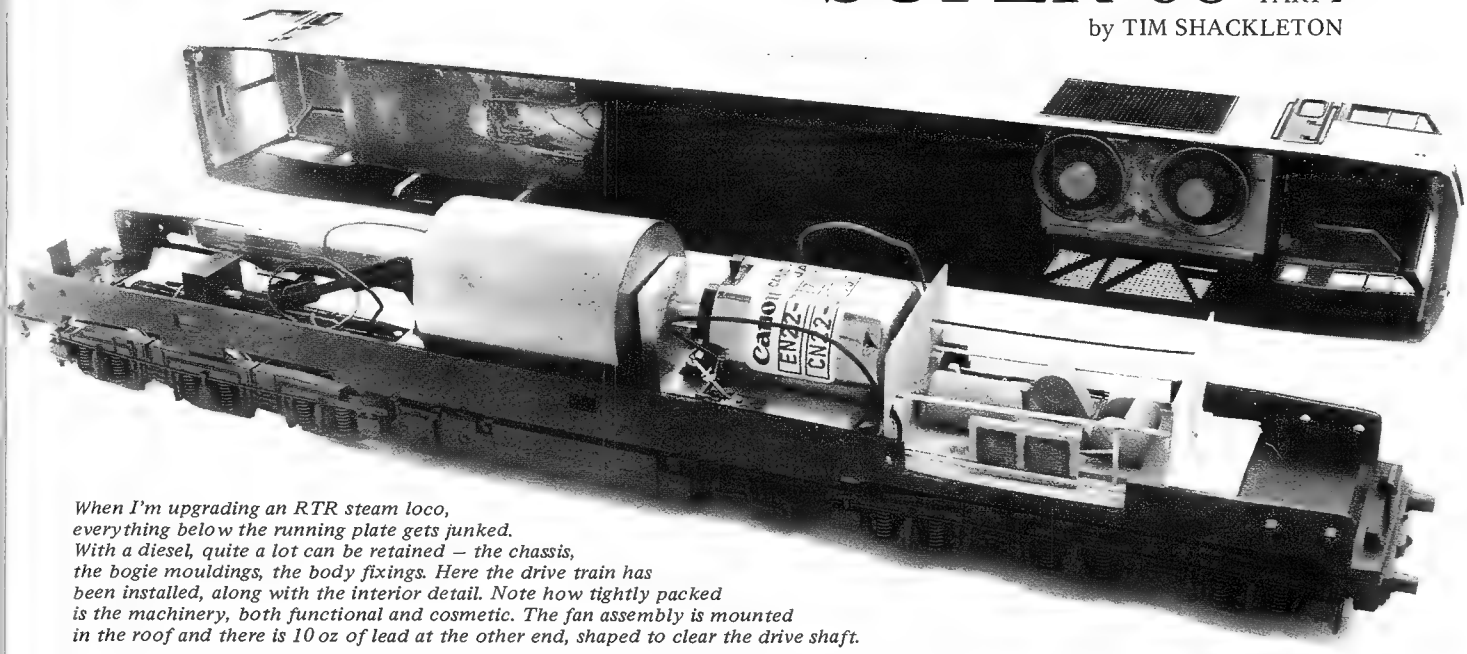
MRJ PORTFOLIO

British Railway Journal No. 57 of August 1995 shows No. 517 photographed at Birmingham Snow Hill in 1892. Tony Reynalds was so captivated by this view that, when later constructing a batch of three 7mm 517s to order, he decided to build an extra model for himself, which we are delighted to feature here.

Apart from RG7-powered Alan Harris wheels, the remainder has been created by Tony, including dummy inside motion which, due to restricted space, could not be made functional. Painted by Alan Brackenborough in ex-works Wolverhampton livery of sea blue/green body with white lining and Windsor brown underframe, the rear of the cab is not adorned with the usual single bucket but two. The extra, allegedly used for the 'convenience' of the crew, was a feature of the original photograph and dutifully reproduced. The response from Tony when one client wondered why his newly delivered locomotive had just the one, was typical of the man: "When you make 'em, you get an extra bucket", which seems only fair, after all.

SUPER 60 PART 2

by TIM SHACKLETON



When I'm upgrading an RTR steam loco, everything below the running plate gets junked. With a diesel, quite a lot can be retained – the chassis, the bogie mouldings, the body fixings. Here the drive train has been installed, along with the interior detail. Note how tightly packed is the machinery, both functional and cosmetic. The fan assembly is mounted in the roof and there is 10 oz of lead at the other end, shaped to clear the drive shaft.

On, then, to the last and most interesting bit – the works. Current full-size engineering culture combines with environmental legislation to create aircraft, road vehicles and railway locomotives that have awesome margins of power but are remarkably quiet and efficient in operation – why should our models be any different? RTR face-commutator motors, however, are puny affairs that make a lot of noise and yet modern traction modellers who aspire to better things continue to stick a lightweight, low-torque power unit like the DS10 into whitemetal Bo-Bos and even hefty class 58s. It's like trying to drive a U-boat with the engine out of a family saloon. My policy, always, is to fit the biggest motor that will go in. I can see no reason to do otherwise – the performance figures are heavily weighted in favour of sophisticated can motors, as is the price factor, although you miss out on the jackrabbit starts and top speeds that would shame a jet fighter.

The maximum for a real class 60 is a mere 60mph – though I have yet to see one working at anything like this – and for a 4mm scale model on a typical layout, the equivalent of 40mph or so seems perfectly adequate. These days I take exquisite slow running as a given – I was more interested here in seeing what kind of power output I could achieve. The presence of the interior detail, however, means that only one bogie of the model can be driven. I suppose twin power bogies would have made for a better job of things, at least in theory, but it is difficult to see how the capabilities of *An Teallach* could or even need to be improved by such duplication. The cost, by extension, would almost double, while the noise levels – always a problem with spur gear – would also rise.

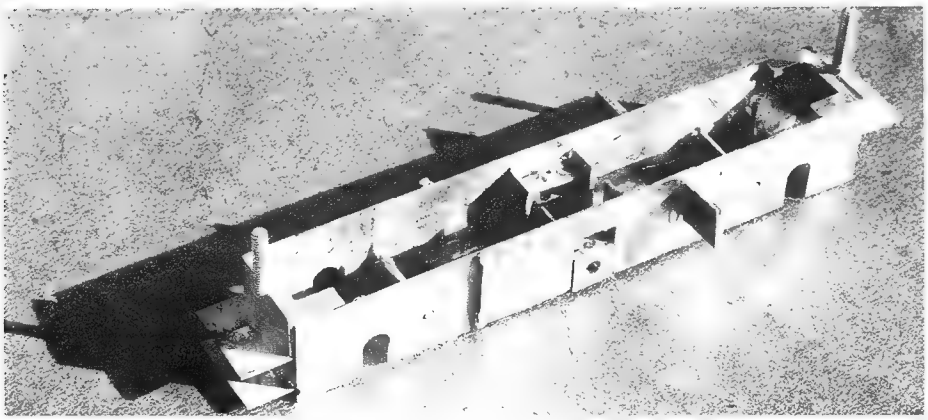
Having decided what kind of performance characteristics I wanted, I acquired a couple of Exactoscale 30:1 gearbox kits for the power bogie, a 40 × 30mm flywheel made for me by Formil Model Engineering (the Dyna-Drive people), milled aluminium mounting brackets and ballraces for same, plus a set of Maygib 14mm coach wheels and various other bits and bobs that we'll come to in due course. The total cost of these components, plus motor, was actually a mite under my target price of £60 – the flywheel assembly accounted for half of this – and I saved even more of my precious hard-earned by using an adaptation of the scratchbuilt, asymmetrical bogie design that I'd used on *Falcon*. The Lima model, by the way, was second-hand, saving me a further £20 and giving me another RTR motor bogie to chuck into my box of solutions awaiting a problem.

Predictably, perhaps, the design of the power train owes a lot to Dyna-Drive technology, which is also single-ended. A class 60 with unmodified bodywork represents an ideal application of the system but, because the cut-away side grilles lose a couple of inches of usable space inside the body, there isn't room to fit the motor/clutch/flywheel set-up in its conventional linear configuration. Instead, I opted to omit the clutch and drive the flywheel direct from the motor output shaft. A fairly massive motor – by 4mm standards – is necessary to get it rolling but, running in precision ballraces, the starts and stops are cushioned to the point of imperceptibility and even at the lowest speeds there is a noticeable over-run with power cut off and the flywheel back-driving the motor. In the Dyna-Drive class 37 and Bulleid Pacific, I had used the Mashima 1833, but just when I was ready to begin work, Andy Mullins of Branchlines imported the first batch of the dimensionally equivalent Canon supermotor – 50% more powerful, slightly higher revving and capable of starting on 0.4V. I had one test-running on my bench faster than you could say Scaleforum.

Although it may seem there's a lot of new machinery to install, surprisingly little modification needs to be made to the Lima chassis moulding to get it all in. The sides are cut away in places so they don't show behind the open grilles, and some form of reinforcement is necessary because the great weight (getting on for 2lb in old money) of the completed loco will cause it to bow where large sections

have been removed. The false floor of the interior-detail unit helps keep things stable but at the power-bogie end I had to tie on a large splint – a length of 3/32 × 3/16 rectangular brass tube Araldited inside the chassis upright – to stop the frames from sagging under the 10 oz of lead mounted directly overhead to aid adhesion. Those similarly hefty European and American RTR paragons, by the way, use a cast mazak chassis, which solves the problem at a stroke.

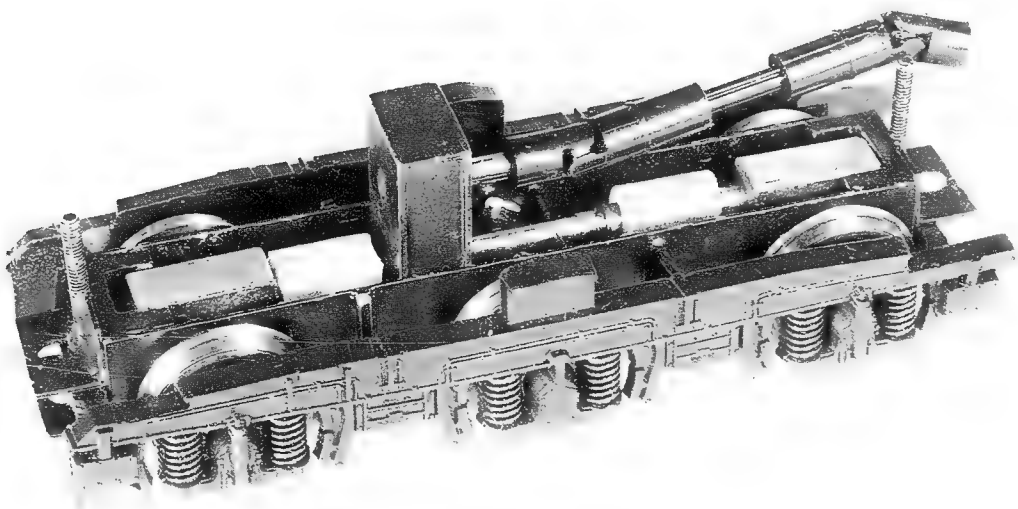
We also need to create two new floor levels to get the motor and flywheel shafts aligned with one another. In my model, these false floors are treated as individual units bolted in place – one for the flywheel on its brackets, and the other for the motor. This allows either or both to be removed at will and indeed all the major chassis components can be dismantled and reassembled very quickly, which is a useful facility to have when the time comes to get everything trued up. After removing both existing bogies and the ballast weight, I cut out all the various protrusions in the floor well. This has a slight step at one end so the rest of the well has to be brought level with it, using sheet Plastikard cut to shape and solvent-welded in place. Then I cut and shaped a piece of ½in tufnol – actually two ¼in pieces butted together – to fit tightly into the well and form a mounting block for the flywheel support brackets, which are then bolted in place. Model engineers with access to a milling machine could produce the same things out of solid brass, which would add some useful adhesive weight. The motor mounting plate is a 4.5mm thick slab of polystyrene, also bolted securely to the chassis; the motor itself is glued to the plate with two-part epoxy. All these components are, of course, located as far forward as possible to create space for the representation of the internal cooling equipment at one end.



The construction of the power bogie is very simple, using L-shaped spacers slotted for the main gearshaft, but a lot of thought went into its design, to allow the basic principle to be extended to a variety of three-axle prototypes. Points of interest here are (from the front): lugs with bolt holes to clamp moulded sideframe; vertical pivot screw allowing bogie to swing; axle slots enabling gearbox to be inserted from underneath; torsion bar (between frames) to which gearbox is soldered; stabilising plate to align with moulded cross-pieces; sprung centre axle; cross-braces to anchor cosmetic sideframes.

The new geared bogie – no more complicated in principal or execution than a tender chassis – is made from 15-thou brass and L-shaped spacers left over from a kit. The centre axle runs in Alan Gibson sprung hornblocks; the prototype's wheelbase is 210cm × 203cm and even though the asymmetry scales down to barely visible proportions in 4mm scale, it does make a subtle contribution to the locomotive's appearance. Lima's sideframe mouldings are, in any case, correct – it's the original power bogie that has the wrong wheelbase, leading to the weird off-centre effect on the factory model. Although a lot of my chassis-building is improvised, a measure of premeditation is necessary to work out what is likely to get in the way of which – here we have drive shafts running along a chassis that is bisected at regular intervals by cross-members and by gearboxes at either end and in the middle. A simple scale diagram – I usually get by with just a dimensioned sketch – will forestall clearance problems, but modellers who enjoy producing their own GA drawings can have a field day with this kind of thing.

Falcon had Ultrascale 38:1 gears in open-frame gearboxes for the simple reason that I happened to have four identical brass fold-up mounts lying around wait-

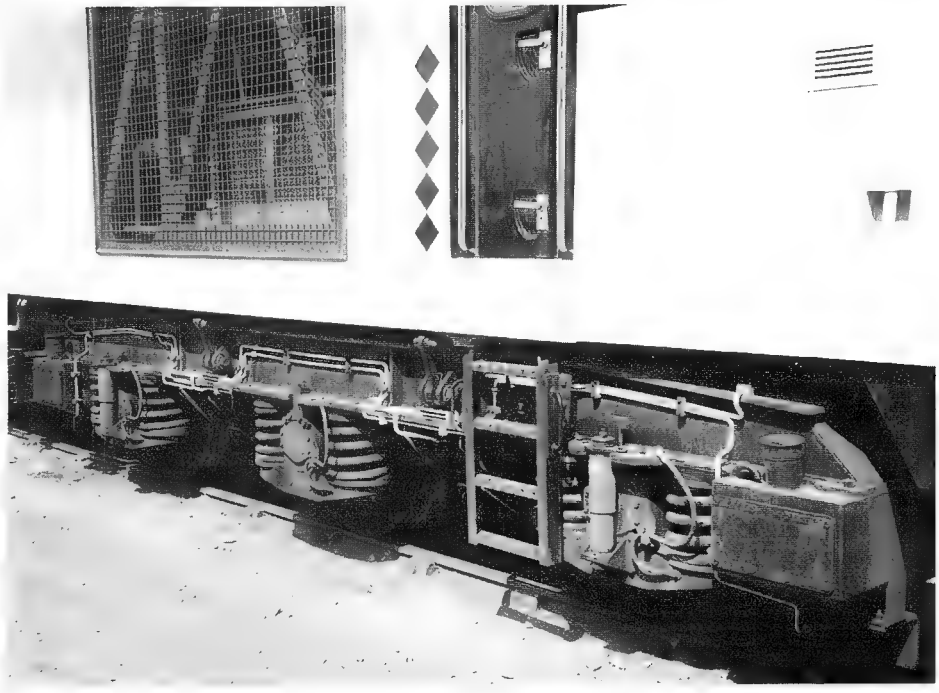


The motor bogie with gearboxes installed and linked by Exactoscale ball-and-socket universals, sheathed in Neoprene. The Branchlines drive shaft is also in place and the sideframes have been temporarily fitted to check clearances – later they will be secured by nuts and bolts. Compare this with the pinion-drive motor bogie on my Dyna-Drive class 37 in MRJ No. 84.

ing for me to find a use for them. Each gearbox was sweet enough in isolation, but the result of having four running in unison – plus the two 1:1 boxes – was a fair bit of noisy chatter and a decision to use an enclosed design on the next chassis, which turned out to be this class 60. For the two driven axles, I used Exactoscale 30:1 gearboxes. I have as much grasp of precision engineering as a wart-hog understands table manners, but even I can tell these are the pukka item. They are very small but – like the excellent Porter's Cap series of mini-gearboxes – seem happy enough in big locos with hefty motors, and run superbly. A thorough pounding from a Canon 1833 with a 40mm × 30mm flywheel might seem to be testing the design limits of such a gearbox but I was reassured to read Dr Weller's letter in MRJ 30 suggesting that it would be quite at home in Chris Pendlenton's legendary Dyna-Driven A1, *Hal o' the Wynd*, which also had a distinctly muscular physique. For an engine running at express speeds, a ratio of around 15:1 would be preferable, but I am unable to say whether the Exactoscale 18:1 item would be man enough for the job, and I've never tried the North West Short Lines equivalent (maybe next time?).

The 1:1 intermediate gearbox that takes the drive from the flywheel via a cardan shaft has twenty-tooth delrin gears in a simple brass frame with bearings. Note that, while the inside diameter of so-called 2mm bearings is usually well beyond an acceptable 'running clearance', the steel stock supplied for axles and gearshafts is often less than a true 2mm. When assembling drive trains, it pays to match shafts and bearings very carefully, otherwise you may end up with several thou's worth of slop that will give a poor mesh and make for noisy operation. To further the cause of better running we must eliminate all potential rattles, and so all three gearboxes are soldered to torsion bars and the cardan shafts are cut to length with as much precision as I can manage, to avoid the transmission of vibrations along the drive train through loose or ill-seated components.

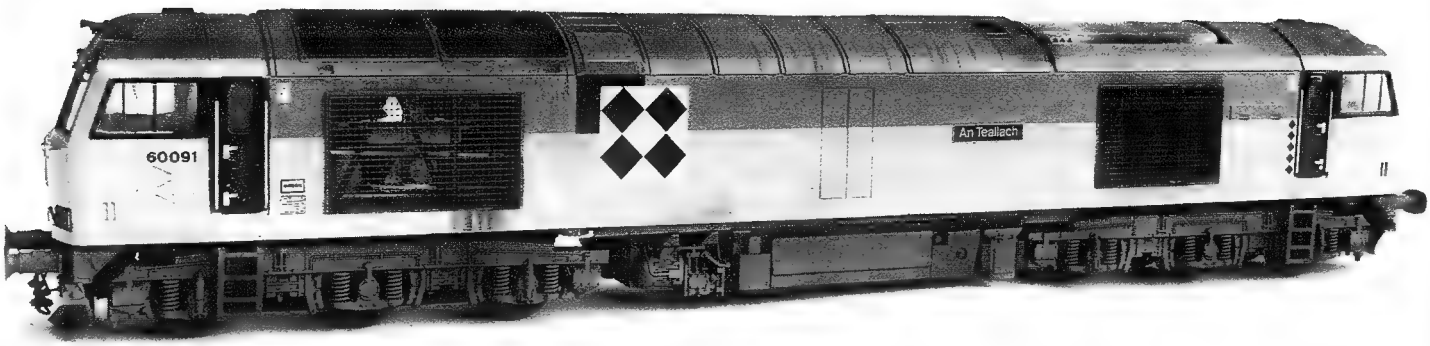
Constructing and reconstructing the chassis for diesel models has made me familiar with a number of universal joint systems, each of which has different characteristics and uses. In this application, I have employed three types. The motor and flywheel are linked by a simple silicone-rubber sleeve with the smallest possible air-gap between the shafts, to provide acoustic isolation. The real purpose of the flexible tubing, however, is to allow a near-instantaneous emergency stop to be made when running fast; with power on, the over-run is considerable and the only way to halt forward momentum is to reverse the motor. In this situation, with the flywheel revolving one way and the armature the other, the silicone acts as a slipping clutch and safely soaks up the torque. Doing the same thing with conventional universal joints would probably rip the heart out of the motor, gearboxes and anything else that felt like exploding.



Bogie detail on the newly delivered James Watt.

The final-drive gearboxes with their $\frac{3}{32}$in input shafts are linked to the intermediate gearbox by standard Exactoscale ball-and-socket universals, sheathed in Neoprene. The cardan shaft from the flywheel to the 1:1 box is the Branchlines type with clip-together ball joints and a sliding drive shaft. When Bob Barlow first sent me one of these – I think I was meant to do a review but I didn't have a suitable use for it at the time – I thought it seemed a bit insubstantial, but, when the opportunity arose, I was pleased to give it a whirl in the class 60, and it's certainly stood up well enough. The input and output shafts are parallel, as orthodoxy dictates, with the clips in line. The centre section, however, runs quite happily at an angle of 25°, which is a lot steeper than most miniature u/j systems can manage without a major loss of efficiency.

I have built a number of 4mm and 7mm scale diesels from kits where the suggested method of securing the sideframes to the motor bogies, and then to the chassis proper, might charitably be described as gimcrack. From the resulting wobbling and hunting, I think it's plain that neither kit designers nor the majority of builders understand that, in mechanical terms, this is one of the most critical areas of any diesel model – the bogies carry its weight, dictate its stability and transmit its momentum. Instead, I think we should try to learn from the RTR manufacturers, because this bogie balancing act is something they do very well. My experience of working with High Level Kits on the design of their LoRider motor bogie taught me the importance of ensuring that the power unit is correctly and firmly seated in the sideframes. There is a popular misconception that the latter are largely cosmetic, and need only be glued or clipped in place, but nothing could be further from the truth. Lima and Hornby bogie mouldings are carefully engineered to perform important load-bearing and stabilising functions, and these structural characteristics should be respected when re-using proprietary components – ergo, you will find no bath sealant, press studs or Blu-tack here, but proper screw-in fix-

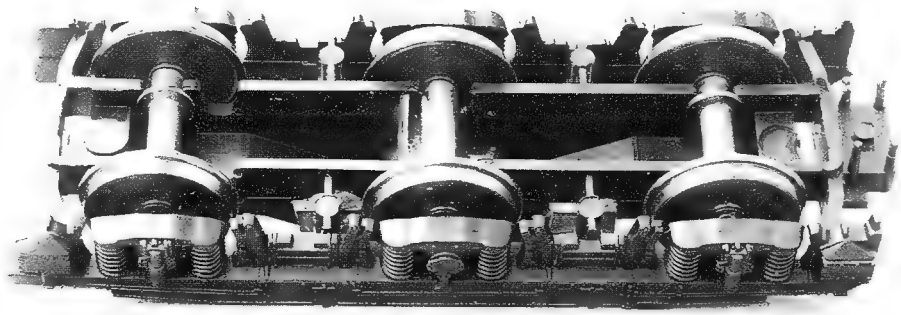


Doubtless thinking of our living room after I've been in charge of tidying-up operations, my wife says An Teallach *looks like it's been cleaned recently, but not very well, and is now starting to get dirty again. I was pleased by her remarks, since this was exactly the finish I was after. Any fool can spray a weathering mix over a loco in five minutes flat, but it take me hours, working from photographs, to build up these highly specific effects. I particularly like the oil seepage from the cooling compartment, which was airbrushed in individual streaks.*

ings that clamp the outer ends of the inner bogie to the sideframe moulding. Lateral cross-members on the motor bogie locate tightly against the sideframes, and play their part in supporting the weight of the loco and transferring it to the track. Inverted 10BA bolts soldered vertically to the extremities of the inner bogie frame transmit momentum to the chassis and enable it to swing. Nuts and washers are added to these bolts to retain the bogie in the chassis – a devastatingly crude idea that works rather well.

Another improvisation is the use of 14mm diameter coach wheels throughout, with the blackening removed to improve current collection by simple wipers on the four outer wheels of each bogie. Maygib, I find, are a nice tight fit on their axles and it is important, with such a high tractive effort as this class 60 generates, that the wheels are fixed as securely as possible. On the trailing bogie the 2mm axles run in ⅛in OD, 3/32in ID brass tube pressed into the slots in the Lima moulding and secured with brass collars. After my earlier homily on bearing and axle diameters this may seem inconsistent, but these proprietary trailing bogies do seem to benefit from having a little leeway in lieu of proper compensation. With their 3/32 axles running in ⅛ holes, Lima's non-powered bogies have the most tremendous fore-and-aft slop, even when fitted with replacement Ultrascale wheels. I have never understood why this works, but work it plainly does, even in P4. All the same, I felt I ought to try and reduce the slop to more manageable proportions – 0.25mm in total instead of 0.9mm each side.

There are some models that I go back to again and again because something isn't right and it's bugging me, and there are those that are just a joy to play with. The

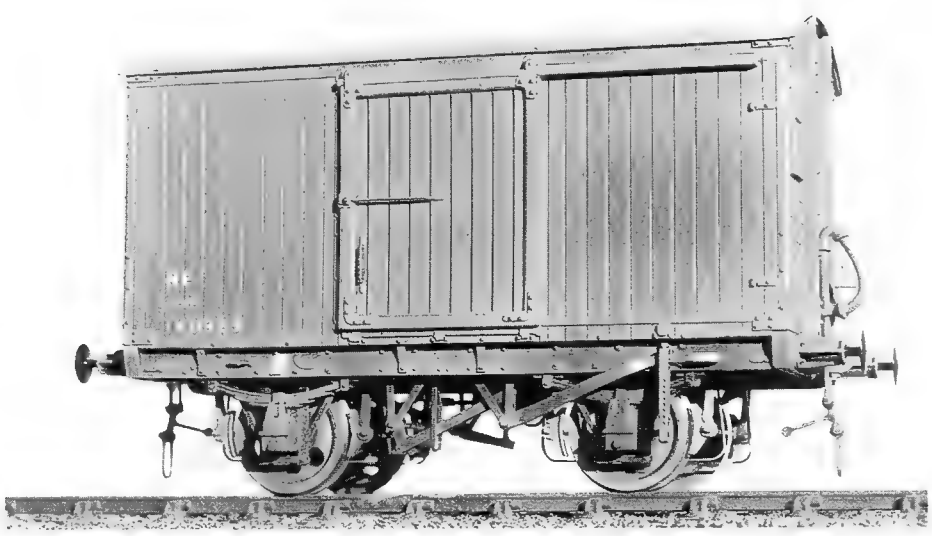


Trailing bogie, showing tubular brass bearings with locating rings. The centre axle is asymmetrical and is force-fitted to an opening made in the plastic frame, using a U-shaped spacer soldered to the bearing.

class 60 was one of these. As might be expected from a loco with some posh running gear on board and weighing in, after careful experiments with ballasting, at around 1lb 12oz (800g), its performance was extremely encouraging, even at the bare-chassis stage. Dead-slow* running was perfection itself, the operating noise was a deep and subdued flutter, and the momentum effect was all but identical to true Dyna-Drive, although I missed the quiet and highly realistic chunter of the motor at idling speed. To test its haulage capacity, I dug out an old flat wagon without pinpoints and loaded it with brass weights from the kitchen scales. We were close to the 2½lb (1200g) mark before there was even the slightest hint that this was any kind of effort for the loco to get under way, and well over 4lb before wheelslip became a serious problem. At full power *An Teallach* exudes a raw, almost animate feeling of controlled energy, but at low speed settings the model – like the real thing – barely whispers. I tried an out-of-the-box Lima model for comparison, and there wasn't any. Even my Bachmann 'Peak' couldn't match the power and positive qualities of its running, although it is quieter than the class 60 at normal operating speeds – the result, I should imagine, of being built to production-line tolerances rather than my make-it-up-as-we-go-along engineering principles.

In creating this model of a class 60, I think I achieved everything I set out to, but to me this piece hasn't really been about how I did this and why I didn't do that. What drove it is the refusal to accept given standards, and the desire to produce something better – a classic MRJ approach, I'd like to think. Having worked my way through a number of previous models that were heading in the right direction, I got to where I wanted to be fairly quickly – there wasn't a lot of mucking-about or rethinking once the project was under way, nor can I remember having to dismantle anything and start again. The only untoward moment came when, with a noise like the crack of doom, I dropped the nearly completed loco down the back of the piano (these things happen in our household). The only damage sustained by *An Teallach* was a misplaced bogie step, but the piano has been a quarter-tone flat ever since.

** (with pure DC from a Pentroller)*



LNER Vans in 4mm

by JOHN HAYES

The wagons described here are based on two recently released kits by Parkside Dundas of LNER timber underframed vans built on a 10ft wheelbase and vacuum braked. PC61 covers the standard 12 ton goods van, over 2,000 of which were built before the change to steel underframes in late 1934. PC62 covers the fruit van version, of which 500 were built; when not used for fruit traffic, these vans were used for general goods.

The basic style had remained the same since the early 1920s and was based on a North Eastern Railway design. The earlier examples had a 9ft wheelbase and were built on both steel and wooden underframes, also with hand and vacuum brakes.

Sources of information used were:

LNER Wagons by P. Tatlow (OPC)
An article in *Model Railways*, March 1975, by Peter Tatlow and Tony Evans gives useful information and drawings of the 9ft 6in wheelbase vans.
The 4mm Wagon Part 2 by Geoff Kent (Wild Swan)
Pre-Nationalization Freight Wagons on BR by David Larkin (Bradford Barton)
British Railway Vans by Geoff Gamble (Cheona Publications)

I decided to build a pair of the early 9ft wheelbase vans using this kit as a basis. For these models I only used the ends, sides and solebars from the kit, and these can be obtained separately from Parkside who are very obliging folk. They will supply parts from all their kits if asked nicely.

Although the basic design and dimensions are the same for all these vans, there are many detail differences to watch out for.

The 9ft wheelbase vans had no crossbar on the sliding door, and the ends also varied, some having the cranked corner brackets as in the kit and others straight brackets.

All these vans had a shutter on the left-hand side of the ends, a feature of North Eastern Railway goods vans which was continued with LNER vehicles. It has variously been described as a ventilator, inspection hatch, or an aid for loading long loads, so if anyone really knows, it would be interesting to learn what these were actually there for.

The moulded solebar detail which relates to the 10ft wheelbase will need removing and replacing to match the 9ft wheelbase.

The first job is preparation of the sides and ends to ensure a good fit at the corners. I have found a home-made emery stick with some 320 grit silicone carbide paper stuck on with double-sided tape, a better tool for these jobs than using files. I prefer sprung buffers on my models, so before removing the moulded buffer stocks, they were drilled right through the headstocks, 1mm dia. The bulk of the buffer was then cut away with side cutters and the remainder removed with a scalpel; a curved No. 10 blade is ideal for this work (Photos 1, 2 & 3).

Photo 1. *Drilling out the moulded buffers 1mm.*

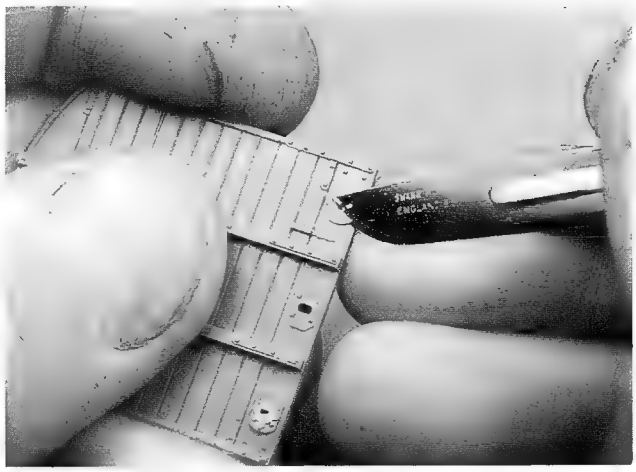


Photo 2. *Removing the buffer bases after cutting the bulk away with side cutters.*

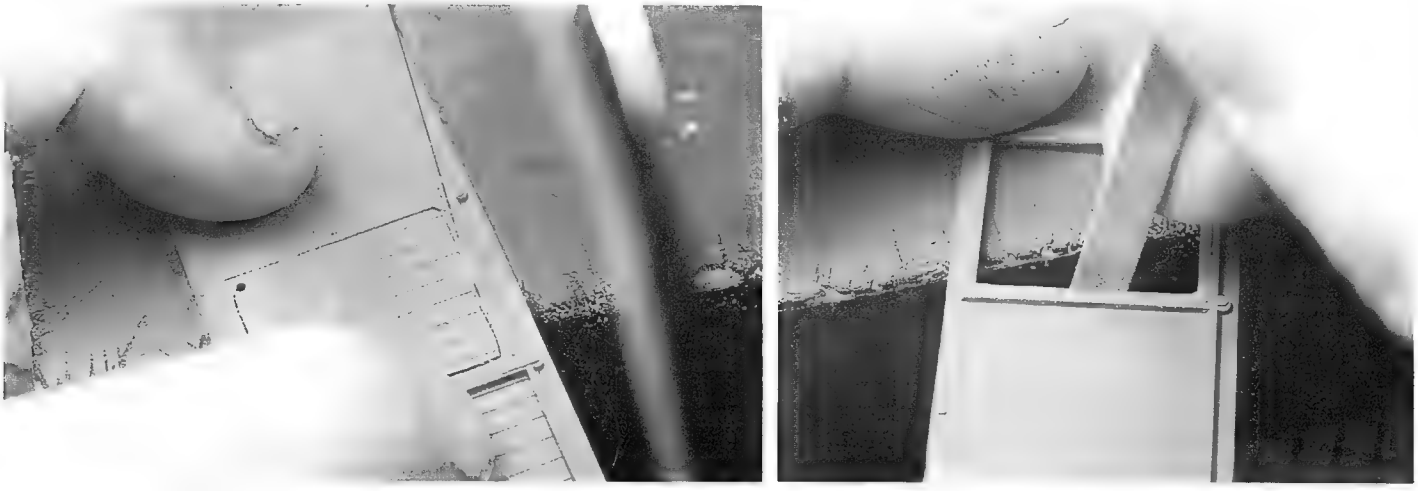
Photo 3. *The end of the unfitted van after removal of buffers and the lamp bracket. On the fitted van, I also removed the bottom corner brackets and rivet detail on the edges.*

I thought it would be possible to remove the moulded central door bar and re-scribe the plank lines, but the result looked a mess so I decided to remove the whole central panel and replace it with a new scribed door. The bulk of the panel was cut out with a fine piercing saw and the aperture cleaned up with a fine flat file (Photos 4 & 5).

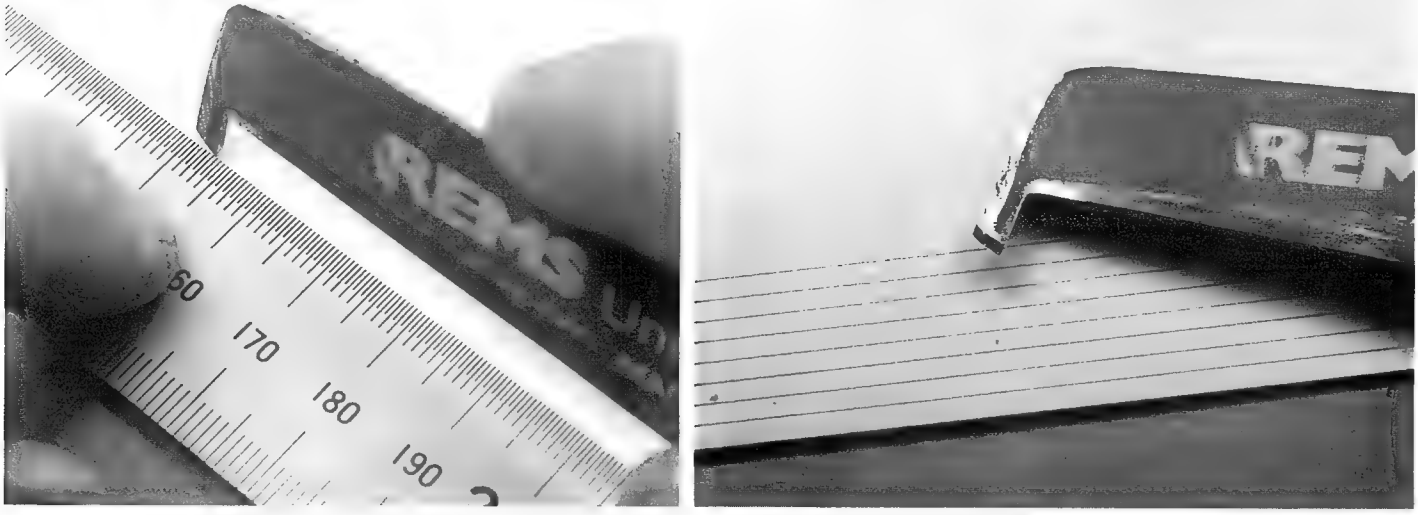
The new panel was made from 0.040in styrene with the plank lines scribed with a tool made from a length of hacksaw blade (Photo 6).

I ground this tool on a bench grinder, but if you don't have access to one, it can be done using a carborundum in a mini-drill with care.

Apart from replacing the door and removing the buffers, the sides and ends

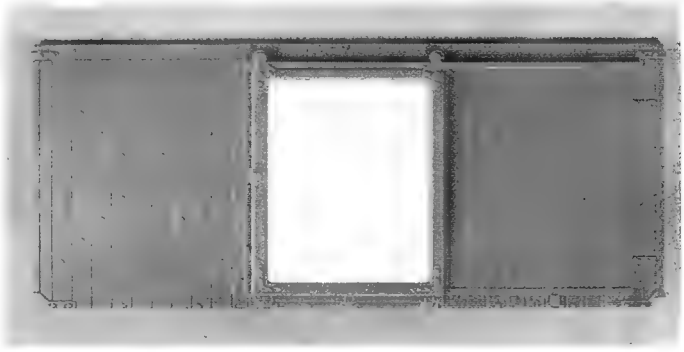


Photos 4 & 5. Left: *Cutting out the door panel with a fine piercing saw. The side is supported on a rubber-faced block of wood.* Right: *Using a fine flat needle file to finish off the aperture.*



Photos 6a & 6b. *These two pictures show the tool used for scribing the new doors. The right-hand picture shows the result. The plank lines were spaced to match the original.*

of the unfitted van were used as supplied with the cranked corner plates (Photo 7). However, I built the fitted version with the alternative straight corner plates and external shutter; the visible bolt detail in the form of an 'X' to the left of the door was also removed on this van. Photo 8 shows the side and end of this van after removing the unwanted detail. The external shutter was added before the body was assembled (see *Fig. 1*).



Photos 7 & 8. *The new door panel fitted to the side.* Below: *This is the side and end of the fitted van. The corner plates and the bolt detail to the left of the door have been removed and a new external shutter fitted to the end.*

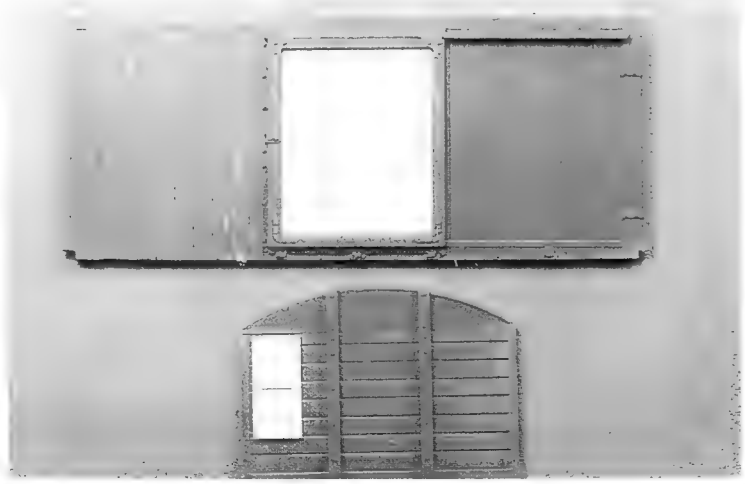
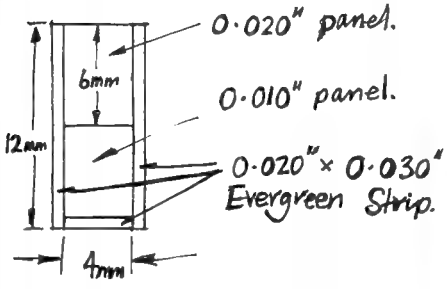


Fig 1



Dimensions of External Shutter.

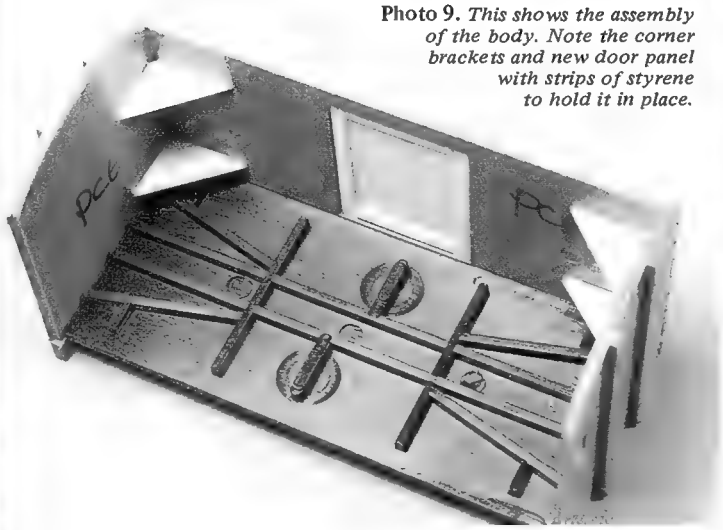
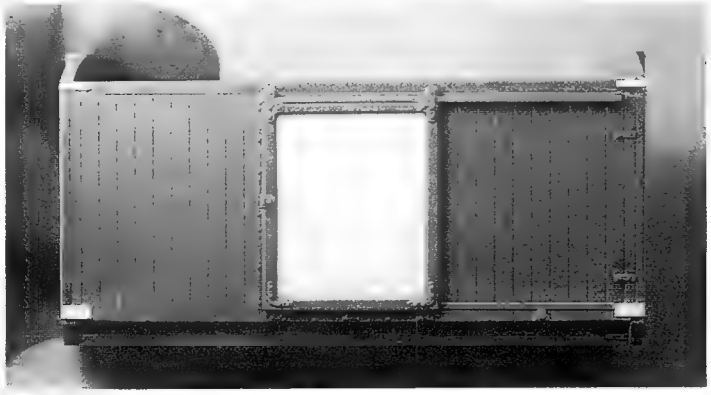
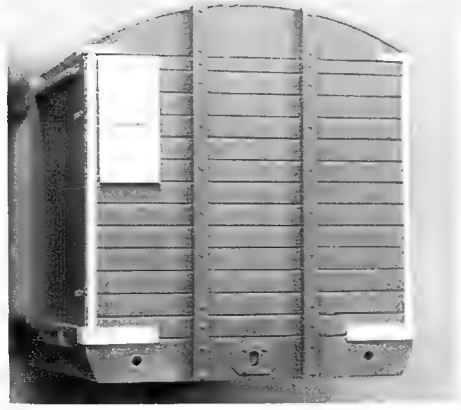


Photo 9. *This shows the assembly of the body. Note the corner brackets and new door panel with strips of styrene to hold it in place.*





Photos 10 & 11. *These two pictures show the fitted van with new straight corner plates, new ironwork up the sides of the ends, tapered ends of the headstocks and the solebar detail relating to the 10ft wheelbase removal.*

The bodies were assembled around the floor which was fitted upside-down to leave a flat base for the underframe. I also fitted strengthening pieces in each corner; these started out as rectangles cut from a 10mm wide strip of 0.040in styrene, using a set square, then cut diagonally to produce the triangular pieces (Photo 9).

The bolt head detail which relates to the 10ft wheelbase was removed after the solebars were fitted to the body, because with the underframe offered up, it is easy to see what needs removing.

After the bodies were assembled, the new corner plates and end ironwork was fitted on the vacuum-braked van and this was all done with 0.005in styrene (Evergreen 9009) (Photo 10).

The ends of the headstocks were tapered on some of these vehicles.

Buffers and coupling hooks were fitted next. I used ABS 508 LNER fitted

buffers on these vans and converted them to springing using MJT 2371 13in heads and springs.

The cast heads were removed with side cutters and the end of the stock filed flat. By holding the buffer in a pin chuck and using a drill in another, it is not difficult to drill the bodies right through 1mm.

The spigots on the buffers were shortened so that, when fitted, they were flush with the back of the headstock. The holes in the headstock were then opened out until the castings fitted tightly; a coarse round needle file is ideal for this. As an aid to alignment when fitting the buffers, I push a length of 1mm piano wire through both buffers at each end of the wagon. This ensures they will be dead straight (Photo 12).

Spring retainers are made from pieces of 0.020in styrene approximately 2mm wide with a 0.5mm hole drilled at one end. These are fitted behind the headstock using the tail of a buffer head for alignment (Photo 13).

When the buffer heads are finally fitted, a small slice of electrical wire sleeve is slid over the shank to retain them. *Fig. 2* shows this.

I used coupling hooks from Ambis Engineering and fixed them in the headstock with epoxy and bent the tails over.

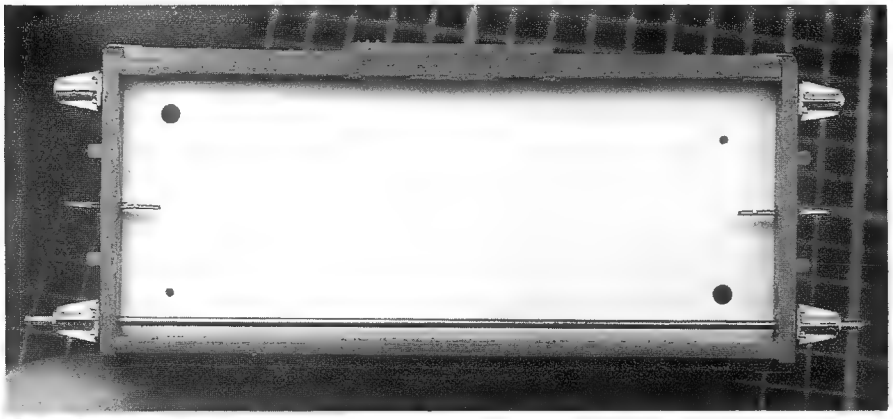


Photo 12. *Here we see the buffers and coupling hooks fitted, also the length of 1mm diameter piano wire used to align the buffers. The floor on this van is from 0.040in styrene, with holes for ventilation in case, when the roof is fitted, the body should be airtight. Trapped solvent vapour can cause distortion.*

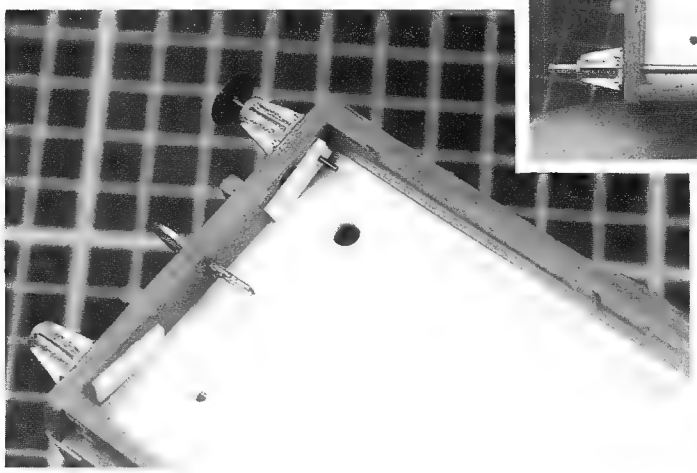


Photo 13. *This shows how the spring retainers are fitted behind the solebar using a buffer head to ensure correct alignment.*

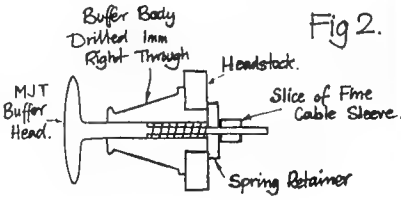
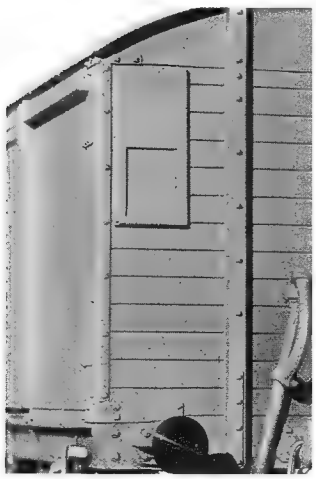
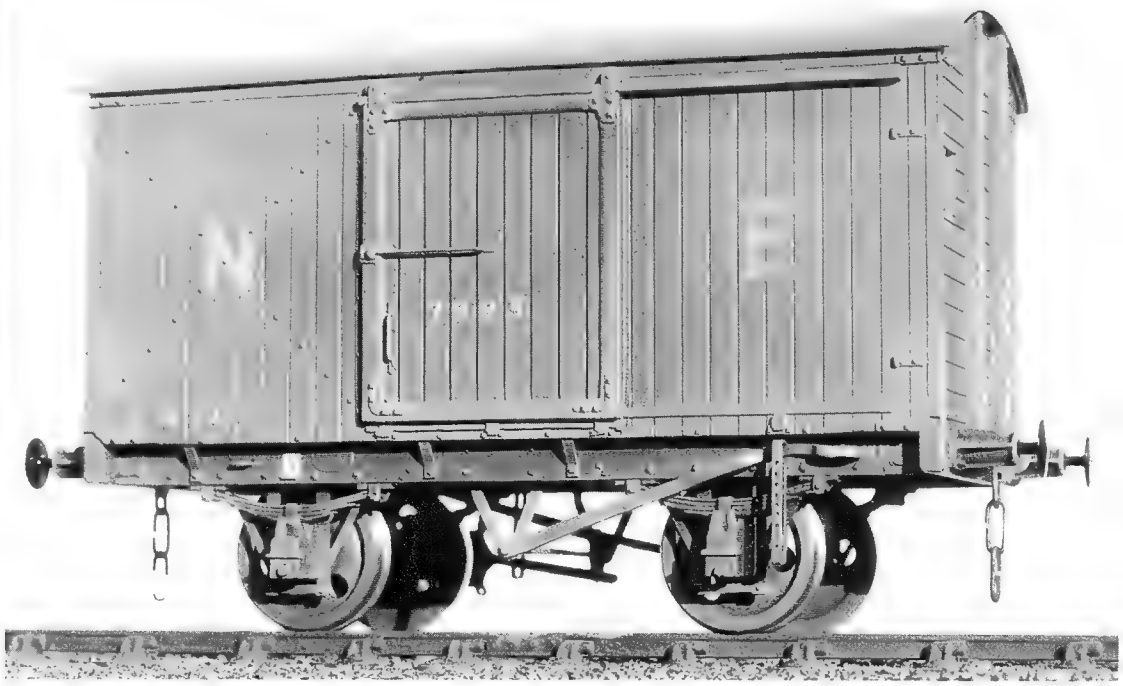


Fig 2.





VAN ROOFS

To my mind, the roofs supplied with many kits are rarely totally convincing because the mouldings are too thick, don't fit correctly or are simply the wrong size. One can usually get round these things with a bit of bodgery, but it can be very satisfying to make your own, which you have to do in any case if you are scratchbuilding. Anyway, I decided to make some jigs for myself which would do the job quickly and accurately. Forming styrene cold is never entirely satisfactory as it usually tries to revert to its original shape, which can cause a degree of warping. Styrene forms very easily in boiling water and, when cool, retains its shape.

The formers used here are simply made from 0.020in brass sheet using a piece about 100mm x 50mm for normal vans. If you own a rolling mill, then forming the curves is easy.

I didn't use any known radii for these vehicles, but curved the former to match the model to hand; that way you know the roof will fit. GW Models make an excellent small rolling mill, which is ideal for these sort of jobs, but, if you don't possess such a thing, the former can be curved by hand using a steel bar, about 15mm diameter, rolled on a sheet of hard rubber or something similar using a bit of muscle power. I have made several jigs now to suit different roof profiles.

Once the brass was curved, I soldered some scraps of waste etch inside to stiffen up the former (Photo R1).

The theory is that roof material, 0.020in styrene, needs to be held tightly against the former while the whole thing is immersed in boiling water.The problem was finding some suitable elastic material which could be stretched tightly round the former. I tried all sorts of things like rubber bands, bulldog clips, etc, but they produced all sorts of odd shapes, basically because the styrene was not held down with even pressure over the surface. I finally solved the problem using some material from an old lady's girdle which my mother found amongst some old clothes. This proved to be the answer, and it also keeps its elasticity in boiling water. The material needs to be stretched tightly around the former. I simply stapled the ends together with an office stapler, but stitching it properly would be best (Photo R2).

The roofs are made from 0.015in or 0.020in styrene cut about 5mm oversize. Cut a good supply of these and take the corners off at one end (Photo R3). This stops them catching when sliding them under the material. With the styrene in place, the whole thing is immersed in a saucepan of boiling water for about ten seconds, then picked out with tweezers and dropped into cold water.

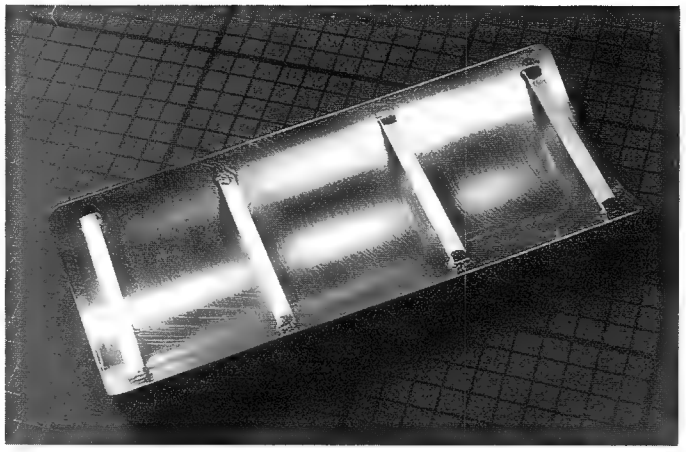
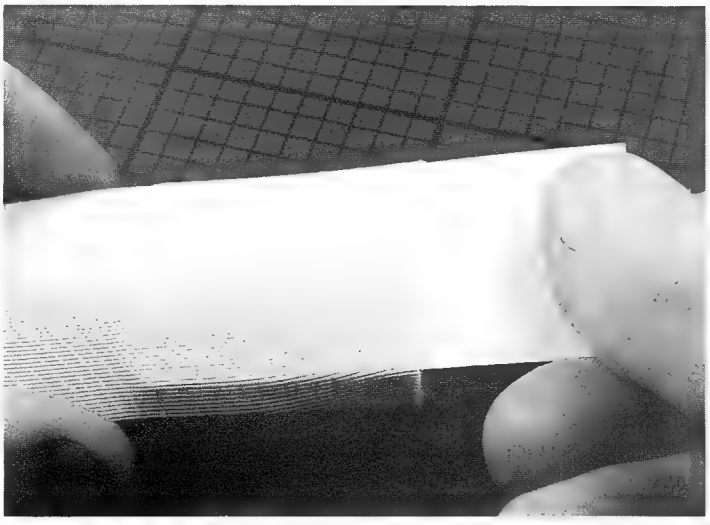
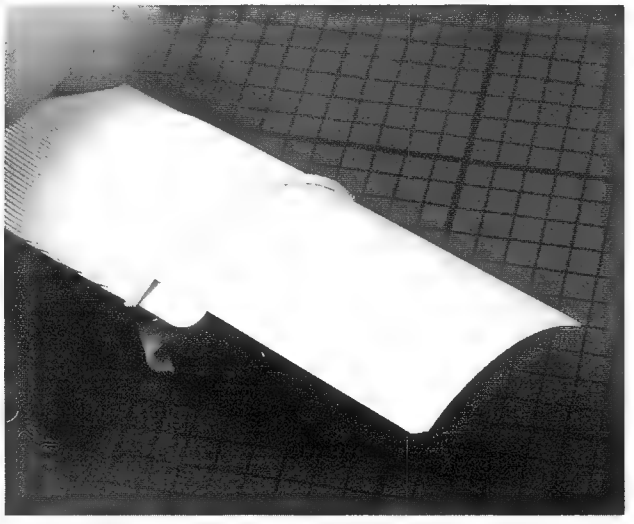


Photo R1. *The roof former with stiffeners added from scrap etch.*

Photo R2. *The elastic material stretched over the former and stapled together.*





Photos R3 & R4. Left: *A piece of prepared styrene being pushed into the former. Cutting off the corners makes this easier.* Right: *This is the result after immersion in boiling water.*

The styrene will have adopted exactly the shape of the former and will stay like it as there are no internal stresses in the material, unlike physically bending it. I find this a very quick method, taking only a few minutes to produce a good supply of roofs (Photos R4 & R5).

When fitting the roofs, I cut a curved piece to fit snugly inside the van body; this is then drilled randomly with a few 1.5mm holes and fixed with solvent to another piece of the same curved material, the holes allowing the solvent to get through the joint. Don't overdo it with the solvent (Photos R6 & R7).

The double thickness stiffens up the roof and the inner piece gives a more positive location. It only remains to trim the roof to size and fix it in place (Photos R8 & R9).

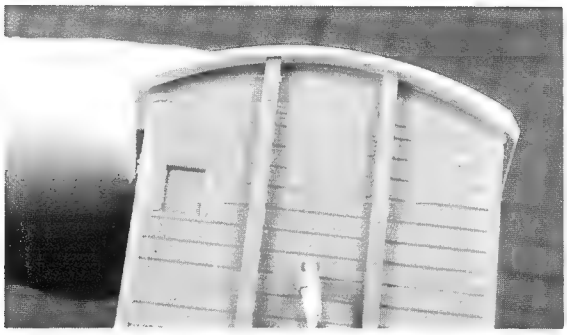
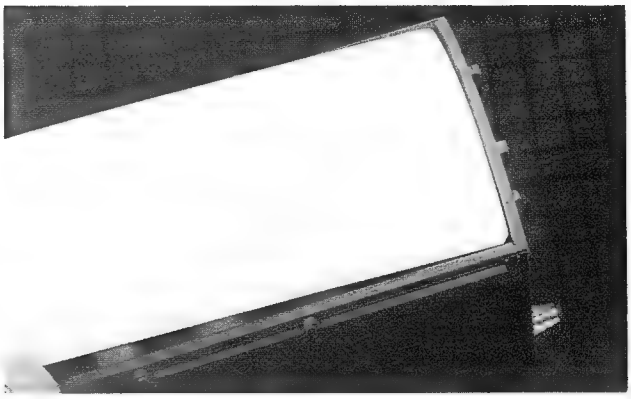
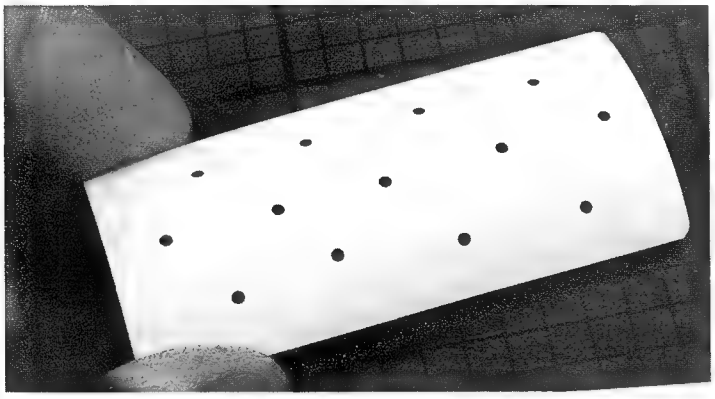


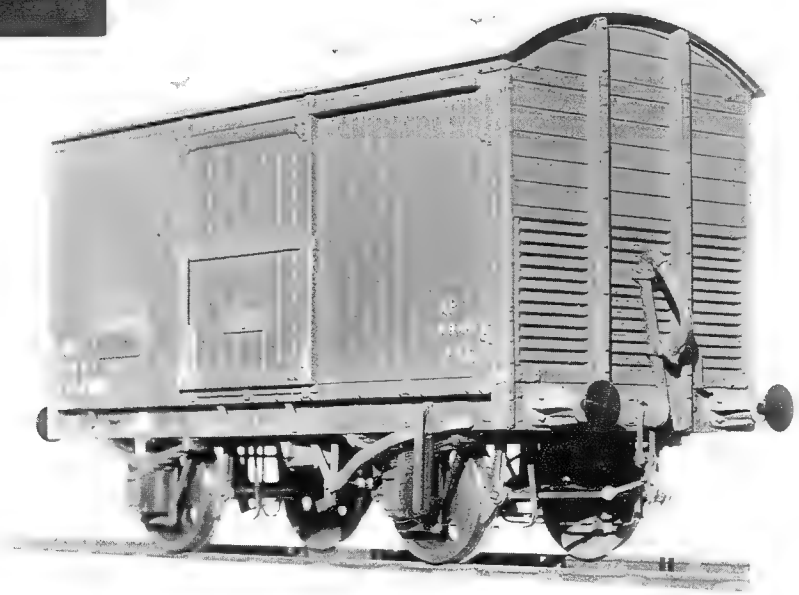
Photo R5.

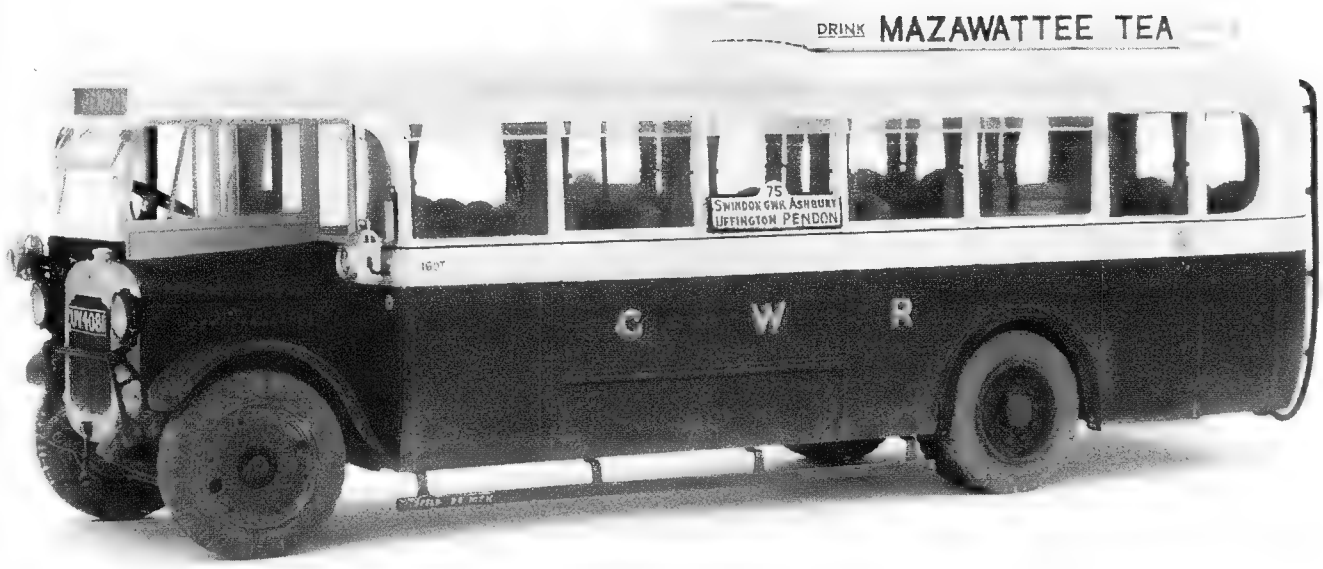




Photos R6 & R7. Left: *Cut one curved piece thus to fit fairly closely inside the van body . . .* Right: *. . . and drill a number of holes to allow solvent to penetrate the joint.*

Photo R8. *This shows the roof before trimming to final size and fitting to the model.*





A THORNYCROFT FOR PENDON

PART TWO by GEOFF KENT

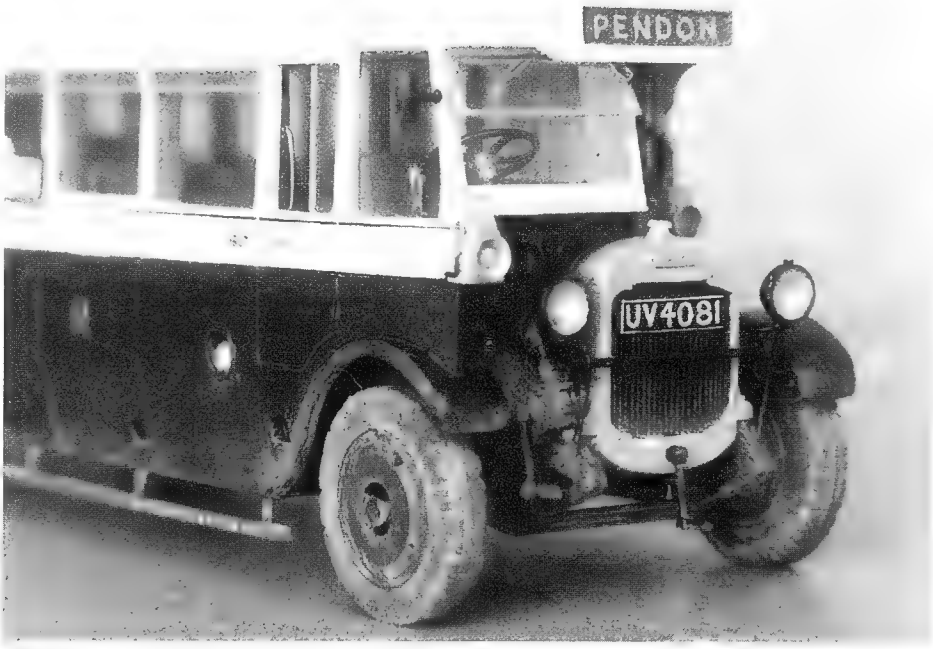
Unlike the main interior floor area, the driver's cab floor isn't removable, being hemmed in, as we shall see, by the solid roof above, and by the wheel arch, spring and axle assembly below. The fact that the steering column projects through the dash panel doesn't help, either. On the outside the dashboard is recessed below the windscreen, which is mounted flush with the pillars on each side; on the model, the glazing is actually set into rebates formed in each of the pillars (see below) and in the built-up projecting ledge at the top of the dash panel. A 5-thou frame conceals the joints around the windscreen.

I have rather complicated matters by modelling the cab with windows open on all sides. The sliding section in the driver's door is just a rectangular slot cut in the bodyside glazing, the leading edge lined with a strip of 5-thou. The panel next to the engine bay is a sandwich: an outer skin of 10-thou covers the main glazing, which, for strength, as in the front bulkhead, extends over the full height and width of the panel, minus a cut-out for the front half of the window, which slides back behind the other. Unlike the cab door window, however, it doesn't disappear entirely behind the fixed section, partly because the front edge is angled to match the rake of the windscreen. So I was obliged to model it as an extra thickness of glazing, and since I didn't want to glue it directly to the first layer of glass because this would impair transparency, I had to include an extra lamination of plain 5-thou material between them. At the same time, I added a narrow strip behind the leading window pillar to match the rebate for the windscreen created on the offside by setting back the forward edge of the main bodyside glazing by 10-thou.

The partly-open upper section of the windscreen is only attached at the top, where, like the lower half, it sits in the rebates formed as described. The material is kinked to the required angle with a pair of pliers, the bend again being hidden, this time by the 5-thou window frame. At this stage this is a pretty weak joint, but in due course the top edge will be secured by the underside of the projecting roof. Incidentally, window frames can either be built up with separate pieces of strip, or made in one piece by cutting and filing a suitably-sized hole in 5-thou sheet, and then cutting round it. The second method is a bit harder, but is more suited to round-cornered windows.

The cab interior fittings consist of a seat, the steering wheel and column, and handbrake and gear levers. There is also a representation of the engine cover in the form of a strip of 40-thou, rounded at the top, and attached to the inside of the near-side panel below the window, making in effect a fifth layer of the sandwich. The seat, made as described for the passenger seats, appears in the interior photograph to be slightly offset to the left in relation to the steering wheel, again, I suppose, because of the strange emergency exit arrangements. The gear lever is a short length of 26swg wire with a blob of epoxy at the top, set into a hole drilled in the 40-thou cab floor. The brake lever is a strip of 20-thou plastic with a knife-cut at the top to simulate the grip and the locking release; it leans forwards and outwards from a simple floor mounting created by a lump of 40-thou with a slightly angled edge. The steering wheel is an X-shaped piece of tinplate cut and filed from a bit of sheet, dished slightly and drilled in the centre to take a column of 0.7mm wire. The rim is a circle of 26swg wire soldered to each of the spokes to give an overall diameter of about 7mm. The column passes through the dash at a steep angle, which I fixed by soldering a small rectangle of sheet metal to it to form a mounting behind the panel.

On the outside, and very conspicuously attached to the lower end of the column, is the steering gear. As is the way of these things, the exact design is not easy to work out from the photographs of No. 1607, and it was very useful to have

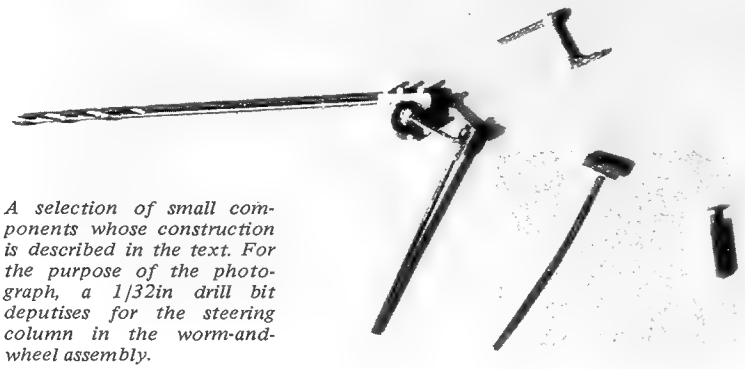


attached to the side of the right-hand chassis member.

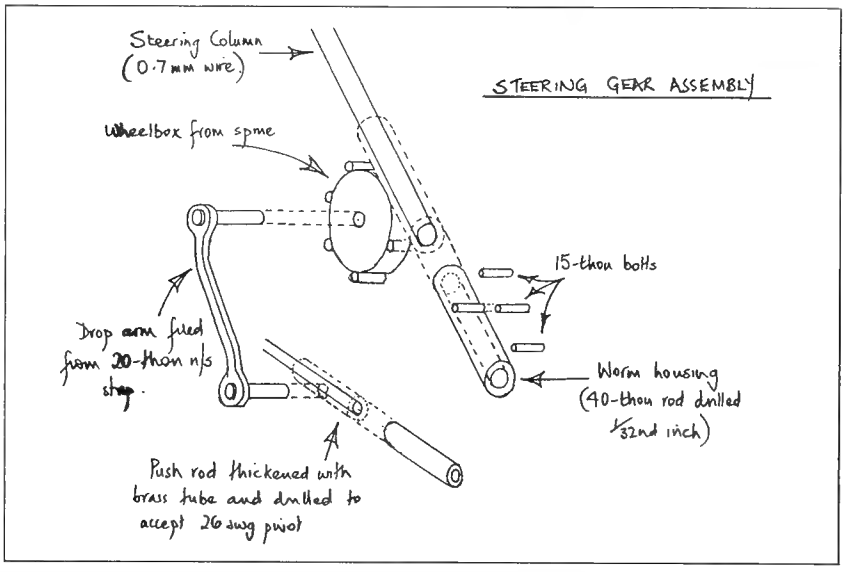
With the cab complete, I turned my attention to the engine cover. With its heavily radiused top, and inward and downward tapers towards the front, the bonnet is something of a trial-and-error exercise. Fortunately in this case, the corner between the front bulkhead and the cabside is a right-angle (it isn't always), so at least one complication is avoided. Using 40-thou material, I made up a four-sided box, the front and rear of which were profiled to the size and shape of the bonnet at each end. The top is a solid lump of three thicknesses of the same laminated together, and sized and trimmed to fit snugly between the end profiles. The curved top and downward taper are the result of filing once the joints had set hard. The handles on the bonnet side are 32swg wire, and the louvres are strips of 10-thou filed and scraped to shape.

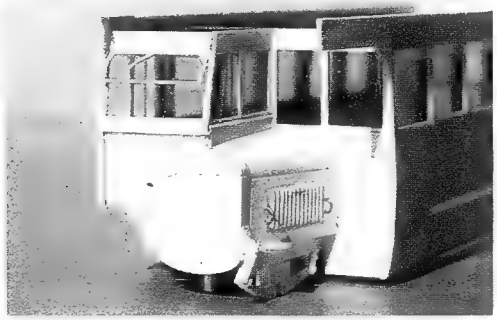
access to a lot of pictures of other contemporary Thornycroft buses and coaches. The gear consists of a worm-and-wheel assembly encased in a housing held together by nuts and bolts; from the wheel spindle a drop-arm connects with a more-or-less horizontal push-rod which disappears behind the offside front wheel, presumably to join a steering arm plus track-rod assembly somewhere behind the axle, which mercifully remains unseen. I made up the worm housing from a short length of 40-thou square strip, rounded with a file and drilled up the middle to slot onto the end of the steering column. This was attached at a tangent to a bit of round spine which forms the wheelbox. The securing bolts are just noggins of 15-thou square strip, again roughly rounded with a file.

The drop-arm is filed out of a length of 20-thou n/s strip to form a sort of elongated dumb-bell, with the ends drilled to accept two short lengths of 26swg wire soldered in to form the wheelbox spindle and the pivot for the push-rod. The push-rod itself is thickened at the end by a collar of suitably-sized brass tube, and drilled and reamed to accept the pivot as a firm interference fit. On final assembly the spindle is epoxied into a similar hole in the centre of the wheelbox. Finally, rather than leave the inner end of the push-rod floating free, this is located in a hole in an entirely unprototypical chunk of 40-thou



A selection of small components whose construction is described in the text. For the purpose of the photograph, a 1/32in drill bit deputises for the steering column in the worm-and-wheel assembly.


STEERING GEAR ASSEMBLY
Steering Column (0·7mm wire)
Wheelbox from spme
15-thou bolts
Drop arm filed from 20-thou n/s stop
Worm housing (40-thou rod drilled 1/32nd inch)
Push rod thickened with brass tube and drilled to accept 26 swg pivot

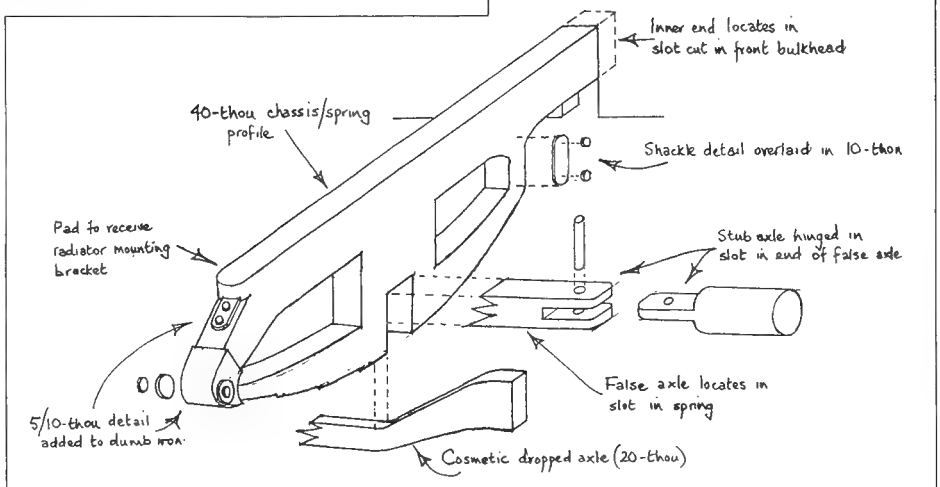


Left: *The underside of the body shell, showing the front mudguards, chassis members and springs, with the cab floor slotted into place above them. Not very tidy, but a good coat of dirty dark browny-grey works wonders.* Above: *The radiator and engine cover have been added, and beading attached to the area of the engine bay. The nearside chassis/spring assembly is in place, but the offside parts cannot be fitted until the cab interior has been put in.*

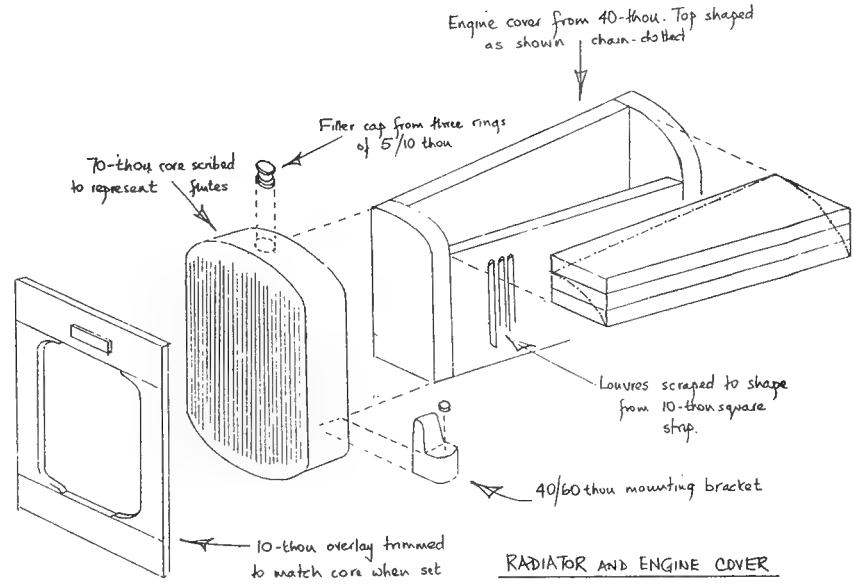
Whilst I was about the bonnet, I also made the radiator. Fundamentally this is a laminated block 70-thou thick, with the flutes of the core scribed into the front surface with a scraperboard knife. An overlay of 10-thou, with the shape of the core cut out of it, forms the slightly proud aluminium casing around the front. The mounting brackets at each side are noggins of 40- and 60-thou plastic cut to approximate shape before fitting, and finished off when set hard.

The basic structure of the front end is completed with the addition of the chassis members and road springs. The chassis and spring on each side are cut in one piece out of 40-thou sheet, and decorated with a bit of relief work in the areas of the spring shackles. Halfway along the springs I formed a slot into which the false axle would later fit; I like to make the front wheels of any model capable of being turned, which somehow makes it look far more realistic, especially when parked as if it has been manoeuvred into position and casually left with some lock on the wheels. Wherever it's not going to be too obvious on the finished model, the easiest way I've found to do this is to take a length of 1/16in square bar, and to cut a slot into each end, into which a tongue filed on the end of a short stub axle (1/16in round bar, for instance) can be fitted. The joint is then drilled 1/32in and hinged with wire of suitable gauge, clenched over top and bottom. The nearer this pivot is to the back of the road wheel, the less fore-and-aft throw when the wheel is turned.

This method obviates the need to make a proper dropped-axle forging with kingpins at each end. A cosmetic one can be fashioned in plastic and attached to the underside of the springs immediately in front of the false axle to preserve the illusion. If the slots in the springs can be made to receive the axle as a tight sliding fit, this allows a degree of up and down rock as well to accommodate uneven ground surfaces. What you don't get, of course, is Ackermann steering (the wheels have to be set individually) or the engineering elegance of Roger Lycett-Smith's solution (MRJ No. 100), but on a normal road surface, and concealed under a coat


Inner end locates in slot cut in front bulkhead
40-thou chassis/spring profile
Shackle detail overlaid in 10-thou
Pad to receive radiator mounting bracket
Stub axle hinged in slot in end of false axle
False axle locates in slot in spring
5/10-thou detail added to dumb iron
Cosmetic dropped axle (20-thou)

CHASSIS, SPRING AND FRONT AXLE ASSEMBLY


Engine cover from 40-thou. Top shaped as shown
Filler cap from three rings of 5/10 thou
70-thou core scribed to represent flutes
Louvres scraped to shape from 10-thou square strip.
40/60 thou mounting bracket
10-thou overlay trimmed to match core when set

RADIATOR AND ENGINE COVER

of mucky browny-grey, this dodge is virtually undetectable on a 'modern' vehicle. Older ones standing higher off the ground are a different kettle of fish, and I was obliged to devise a system far closer to Roger's method for Pendon's AEC Y-type lorry earmarked for the brickyard scene.

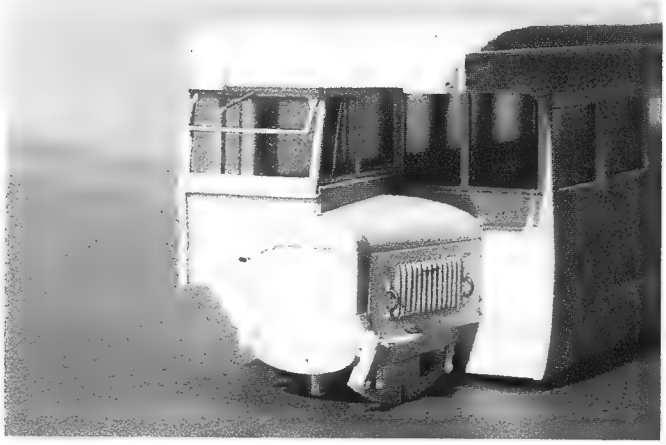
Contrary to my normal practice, I used Langley whitemetal castings for the road wheels, although a certain amount of plastikard embellishment was called for to make the front ones in particular look like the real thing. The wheels aren't intended to rotate, so they can be epoxied onto the axles: the short stub axles in the case of the front ones (being careful not to glue up the pivot at the same time), and a single length of 1/16in wire/rod for the rears. This clips into slots drilled in a pair of 60-thou mountings attached to the underside of the floor.

There remains one fundamental part of the structure on which we have barely touched – the roof. In a perfect world this would be modelled like the real thing, and built up onto a set of frames arching between the sides. Some vehicle modellers do this, but on the basis that from any normal viewing angle nothing of the interior above the windows is visible, my method is to laminate several thicknesses of 40- to 60-thou together and to file the roof from the solid. This, of course, sacrifices all the interior detail above window level, like luggage racks, clock and lights – or saves you a deal of trouble in making them, if you prefer to look at it that way.

The first stage is to cut and file a piece to sit snugly inside the top edges of the sides, the rear panel and the front bulkhead, just clear of the top of the glazing and curtains. If you've thought far enough ahead, it should sit neatly on top of the triangular fillets in the two rear corners. If you haven't, now is the time to trim these to make as clean a mating surface as possible with the underside of this first roof layer.

The next layers, up to the full thickness necessary, can overlap the sides and ends and project forward of the bulkhead to make the cab roof and canopy. The idea behind making the underside of the roof a bit higher in this area is to simulate the void space behind the valance around the front of the roof: not essential, but it helps to preserve the illusion in any ground-level view that the roof is in fact hollow rather than solid. This does require a bit of extra work to continue the curved valance around the front. At the sides it's reproduced by the forward projections of the cornice above window level. Across the front I added enough strip to bring the leading edge to the same depth as these projections, and filled the corners with triangular fillets which could be filed back when set to the rounded shape of the peak.

A further complication is introduced by the destination display, which always looks better when glazed like the real thing. Having formed the roof and valance roughly as described, I cut and filed a slot about a millimetre deep to receive the blind unit made up of (a) the blind itself: a strip of 10-thou painted black with 'PENDON' written on it with a mapping



Right & below: *The laminated roof is located between and overlapping the sides. The cut-out for the destination display has been filed into the roughly-shaped peak of the roof.*

The destination display part-finished, together with other bits of writing, numberplates and side destination boards, all done with a mapping pen and enamel paint on a scrap of 10-thou sheet painted in the apropriate background colours. The rectangular main display will slot into the cut-out designed for it, and is deep enough for the dipped centre of the valance to be filed out of it after fitting.

pen in white enamel; (b) a spacer or frame of 5-thou to prevent (c) the 10-thou glazing from coming into direct contact with the blind and ruining it with solvent by capillary action; and (d) an outer skin of 10-thou with the aperture cut in it, and intended to sit flush with the surface of the valance on each side. Finally, I edged the aperture with a beading of narrow strips of 5-thou, carefully rounded off by scraping when properly dry.

Once the blind box has been fitted, the roof can be attached to the body and filed to shape. This involves a good deal of rough treatment with a coarse file, at least to begin with: two to three millimetres need to be taken off the cornices and rear dome. When you get closer to the final shape, you can change to finer files, and ultimately to glass paper or wet-or-dry. The hardest part to shape on this particular vehicle is the front because of the bulge above the destination display, which needs to be faired into the shape of the roof proper on each side. You need to check constantly from all angles that you're treating both sides equally.

This is also when you find out whether all your joints and laminations are solid, but it's not a total disaster if you reveal a dry joint line or a cavity; styrene being the accommodating stuff that it is, it's very easy to seal a hole or furrow with bits of strip pressed in with a generous application of solvent. A wash of solvent is also a useful way of highlighting any minor irregularities or file marks in the surface, and this can be done as many times as you like without risk. And when you're eventually satisfied that you've got the shape right, a final wash will restore the surface lustre so that the paint finish isn't impaired.

In common with many coaches of the period, No. 1607 was fitted with a roof-mounted luggage-rack, to which access was gained by a narrow ladder fixed to the nearside of the rear panel, with an intermediate stepboard on the rear dome. I made the sides of the rack of 20-thou, mounted just clear of the roof on eight short lengths of 40-thou square strip stuck vertically into the corners and at intervals along the sides coinciding with the window pillars — the photographs suggest, and the Guy drawing confirms, that they were so located for reasons of strength and rigidity. Just visible on one of the pictures is a hint of longitudinal ribs or slats fixed to the coach roof inside the rack.

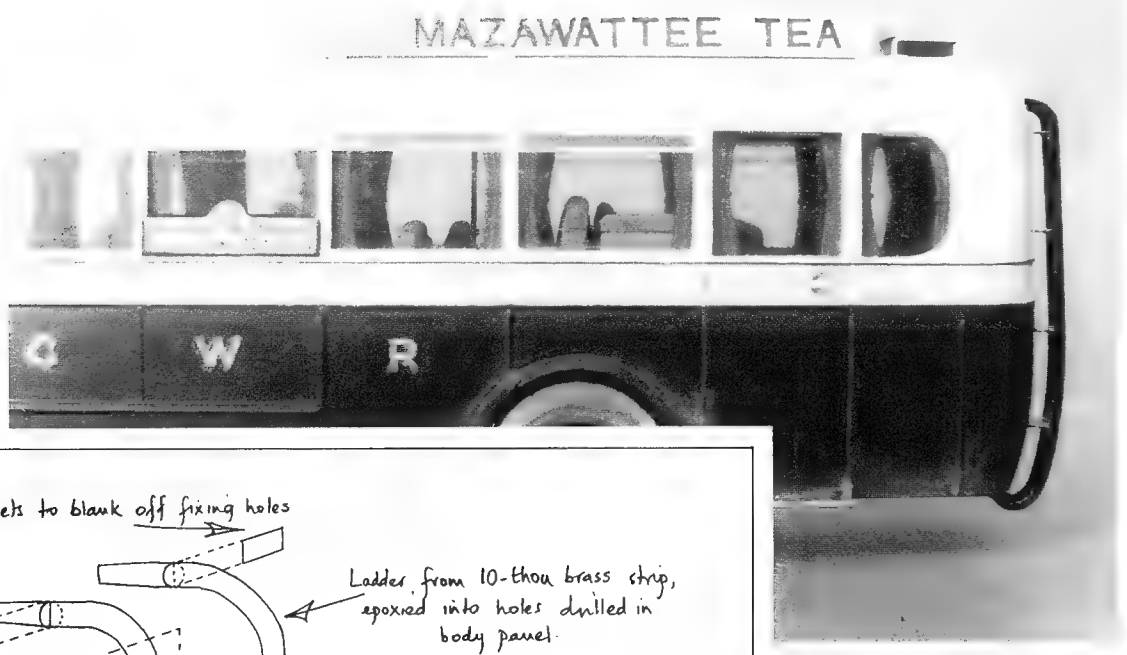
With the roof glued in place, it can be filed and sanded to shape. This involves a fair amount of rough treatment with a coarse rasp, at least in the early stages.

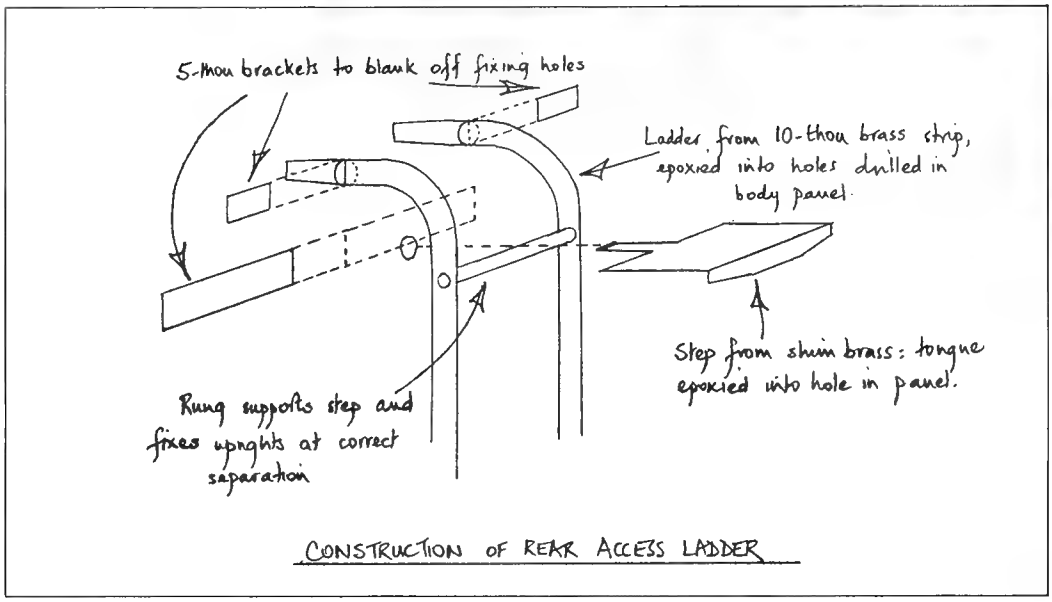
Once you're satisfied with the shape, body-side mouldings, beading and gutters can be added in 5-thou strip, and scraped to a roughly half-round profile when dry. The tell-tale lines showing where the various thicknesses of material have been filed away, will disappear under two or three coats of paint.

Elevated photographs of vehicles with roof-racks are scarce, but those I've seen do tend to back up the notion that some form of reinforcement might be expected inside the enclosure, probably both to protect the roof covering and to give the attendant a non-slip working surface, so I added these in 20-thou strip.

A tarpaulin to keep the luggage dry would have been provided, as it was on the Gilfords, but there is no evidence that I can see as to how exactly it was stowed when not in use, for it features in none of the photographs (although a securing strap can be seen dangling on the roof in one of Roye's shots). It's possible in any case that it had been removed by the time the vehicle was being used on stage carriage duties, for which the roof-rack would probably have been superfluous. Anyway, I made no attempt to model it; it could always be added later using wagon sheet material — my choice would be the stuff used for the lining of Ty-Phoo loose tea packets.

For the access ladder I resorted to metal, cutting two strips of 10-thou brass from a sheet and soldering them together while I drilled four holes where the steps are located. Not that the ladder had rungs in the conventional sense, but I reckoned it would be easier to mount the steps squarely between the uprights if they had bearers to sit on, bearers which were already holding the uprights rigid and the right distance apart. So having separated

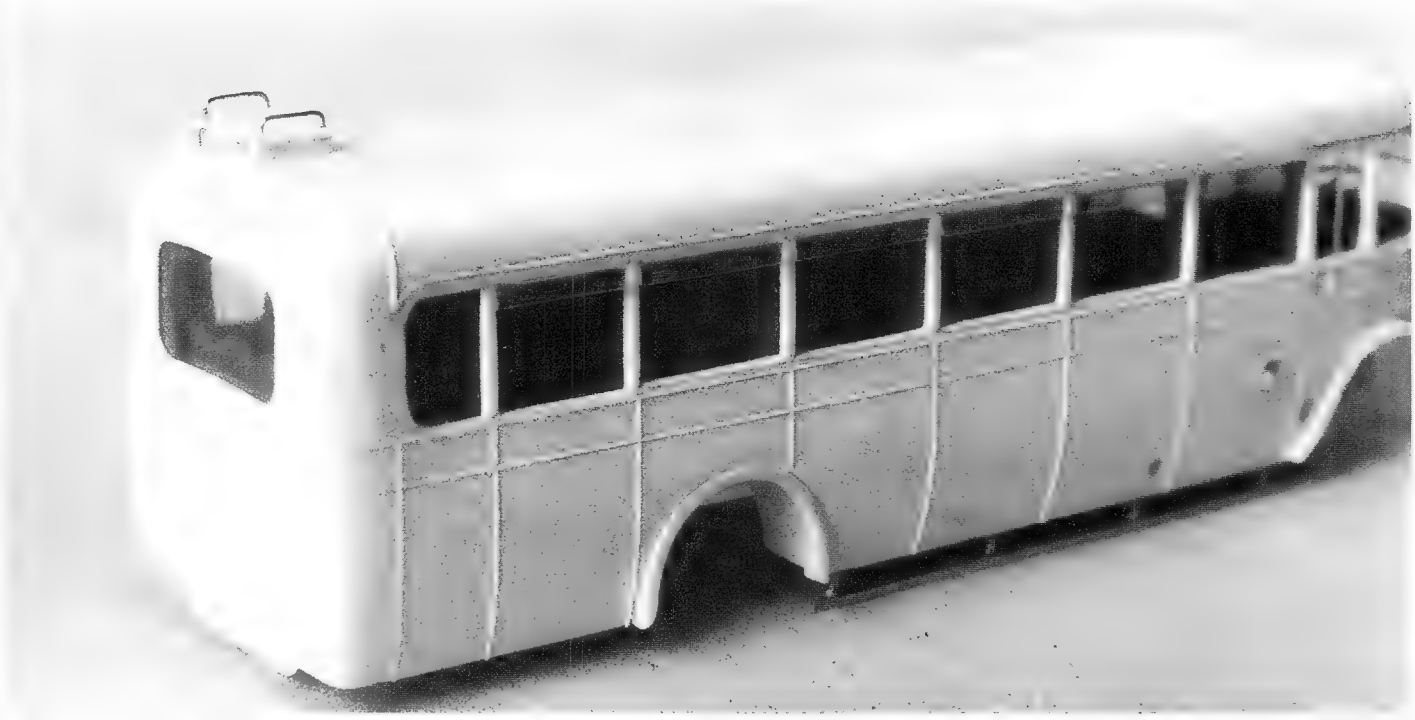



5-thou brackets to blank off fixing holes
Ladder from 10-thou brass strip, epoxied into holes drilled in body panel.
Step from shim brass: tongue epoxied into hole in panel.
Rung supports step and fixes uprights at correct separation

CONSTRUCTION OF REAR ACCESS LADDER

the uprights and bent them to shape with a pair of smooth-jawed pliers, I soldered in four rungs of 30 swg wire, and cut and filed to shape four steps of shim brass to fit over them. The steps have a lip on the outer edge which hides the rung, and a tongue on the inner to fit a 1/32in hole drilled in the body. The top ends of the uprights are similarly epoxied into drilled holes, and if the floor had been fixed, I would have secured the turned-under bottom ends in the same way. As it was I soldered a bridging piece between them and left them unattached. Finally I concealed the most visible parts of the holes with rectangles of 5-thou to simulate the backs of the steps and the fixing brackets at the top of the ladder.

The last chapter in the construction of the body is to add the beading that covers the panel joints and forms the horizontal mouldings at waistline and cantrail level. These are all narrow (about 0.3mm) strips



cut from a sheet of 5-thou and carefully scraped to a roughly half-round profile when dry. I used the scraperboard knife again for this job.

All that now remains before painting is a few items of detail, chiefly the lamps and the protective bar in front of the radiator. For reasons of its own, the Great Western accepted modern electric headlamps and a single electric tail lamp on the Thornycrofts, but in place of the manufacturer's by then standard wing-mounted sidelights, specified what look very much like oil or acetylene lamps for the front sidelights and a second rear light — although the wire connections to these suggest that they were, after all, electrically lit. These, especially the front ones, look very similar to standard railway lamps, and I made them up from bits of 40-thou strip about 1.5mm wide. I thickened this up to 1.5mm all round with a strip of 10-thou bent into a tight U-shape, and attached front and back to form the half-round top. The handle was a bit of the thinnest fuse wire I could find. The cowl around the lens was hollowed out with a drill bit twirled in my fingers, assisted by a broken rat-tailed file, in the end of a length of 80-thou rod (once again square strip rounded with a file — white styrene is very much easier to work than the red stuff that comes pre-formed). This was then gently filed to a slight cone on the outside, and parted from the rod with a knife. The 'glass' is actually the body of the lamp painted with a very thin charcoal grey wash. The fixing brackets are two lengths of 32 swg wire twisted and soldered together at one end, and bent to fit round the lamps at the other. The twisted end is epoxied into the vehicle body, and the outer ends into holes drilled in each side of the lamp.

Roye's photographs show that two different patterns of rear lamps were used; I chose the one that was on when he saw the bus at Swindon. This lacks the handle of the front lamps, but has three unhooded lenses — at least, I'm pretty sure there would have been a third one on the left-hand side to illuminate the lower number

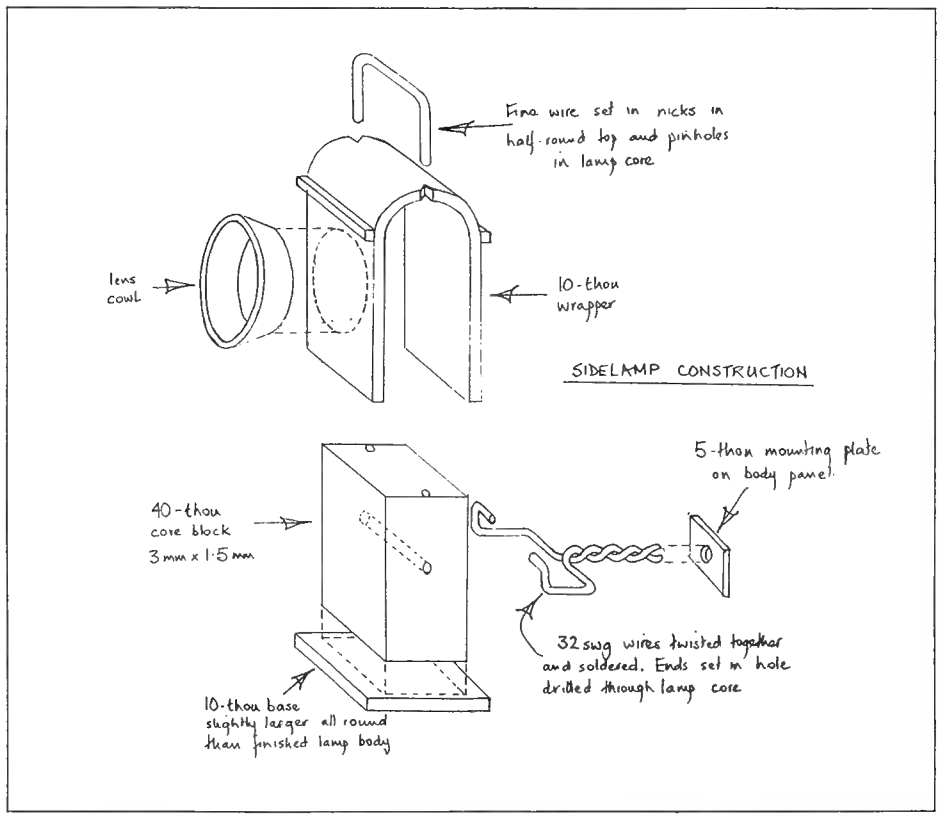

Fine wire set in nicks in half-round top and pinholes in lamp core
lens cowl
10-thou wrapper
SIDELAMP CONSTRUCTION
5-thou mounting plate on body panel
40-thou core block 3mm x 1·5mm
32 swg wires twisted together and soldered. Ends set in hole drilled through lamp core
10-thou base slightly larger all round than finished lamp body

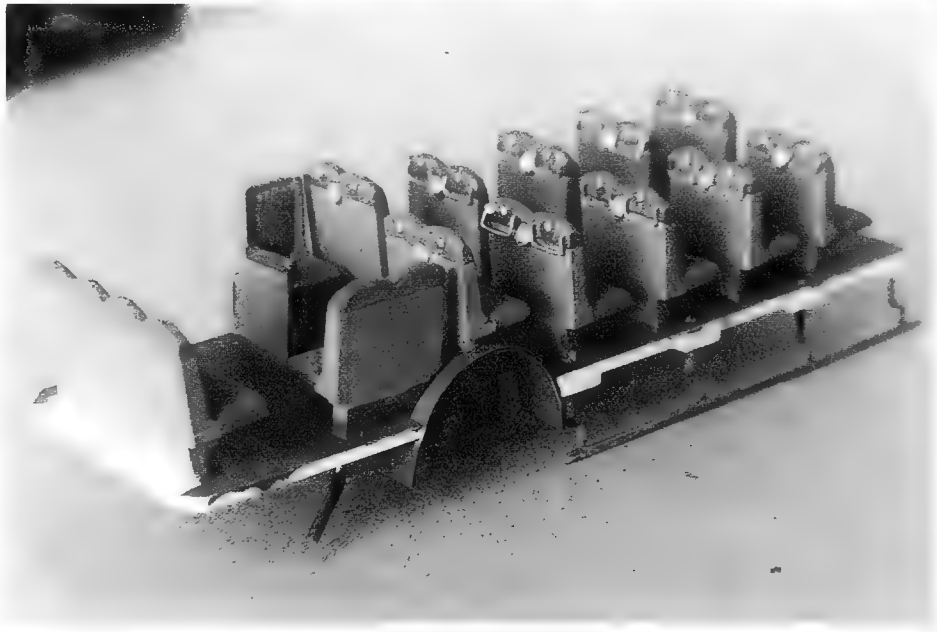
plate (though why there should be *two* rear number plates is anyone's guess). On this lamp the lenses were just the rounded ends of a bit of 40-thou rod, and so is the electric light mounted on the top right-hand corner below the roof dome.

The headlamps are again hollowed out with a drill bit, this time in the end of a length of sprue about 3.5mm in diameter. The rear is shaped with a file, leaving it attached to the sprue for as long as possible for ease of handling. The inside is painted silver before the lamp is stuck face down onto a piece of clear styrene; it's advisable to drill any holes for fixing wire beforehand so that bits of swarf don't get trapped inside. Once dry, the glass can be trimmed to shape and a 5-thou rim added; this is made in the same way as the rim round the fuel filler hole.

The headlamps on the vehicle are mounted on brackets attached to the end of the radiator bumper bar (I suppose we'd call it a bull bar these days). The cast side frames of this assembly were drilled and filed out of 10-thou brass sheet, with a tongue at the top bent outwards and upwards to form the headlamp mounting. A tiny noggin of 26swg wire soldered into one of the two holes at the base of the 'casting' anchors each one to the chassis member; the other fixing bolt is a rather more cosmetic bit of wire added later. By only drilling one hole in the chassis to begin with, an element of tweaking is possible to make sure that the bar is level and square to the face of the radiator. Once you're happy that all is well, the bar can be touch-soldered to the brackets at each end, and the lamps epoxied onto their respective prongs.

The horn fitted to No. 1607 was one of the old-fashiond trumpet-shaped bulb horns. The trumpet mouth was filed into a piece of 40-thou white rod drilled up the centre to fit onto a length of 0.5mm brass wire that had been bent into an oval. It takes a sharp eye to spot that there's no bulb on the other end inside the cab.

A fire extinguisher was fitted to the nearside window pillar on the front bulkhead. For this I soldered a T-head filed out of a piece of tinplate into the thinnest section of brass tube I could lay my hands on. A rectangle of tinplate also forms the driver's rear view mirror, soldered onto a stalk of 32swg wire which is epoxied into a hole drilled in the front offside window pillar. The windscreen wiper is two short lengths of 5-thou cut as thin as I could,



The removable interior after painting. The method of fitting the guard rails and the rear axle can be seen. The exhaust pipe is a bit of paperclip wire glued to the underside of the floor.

and the starting handle consists of pieces of 26swg wire soldered into holes drilled in the ends of a bit of 20-thou nickel-silver bar filed round in between.

Although I had painted one or two external areas during the construction phase because they would be harder to get at later on (the radiator sides and the cream parts of the engine bay in particular), most of the painting had as usual been left to the end. I used Railmatch GWR carriage brown for the lower panels and Humbrol stock cream for the window surrounds. The cream I lightened with equal measures of matt and gloss white, and was reasonably satisfied with the slight sheen of the result. The brown areas looked too matt to me, so I rubbed the side and rear panels down carefully with rubbing compound which had the desired effect.

As with the interior, some aspects of the exterior colour scheme are slightly conjectural. The roof, for instance, was certainly not cream, except for the rear dome; very pale matt grey seems the most

likely, and that's what I used, but the Gilfords apparently had a darker, gloss-finished roof, which also extended to the sides of the roof rack. The colour of the mudguards was also difficult to decide upon. Brian Haresnape's booklet on GWR liveries (Ian Allan, 1983) is generally more helpful on road vehicles than the HMRS Livery Register, which only mentions them in passing, but even here mudguards are only referred to in one specific case, a 1947 lorry on which they were black. Looking at most black and white photographs, you can convince yourself that they were either black or chocolate, though on balance black would be more typical of bus liveries generally, and looks better to me. But I could be wrong, and specific vehicles might bend the rules anyway. The bright frames of the windscreen and the glass weather strips were picked out in Humbrol polished aluminium to represent chrome, although at that period brass would have been a possibility. Finally, I had to assume that the Mazzawattee Tea advert attached to the sides of the roof rack was black lettering on a cream ground. Contemporary enamel adverts for the product generally seem to have had white letters on a red or blue background, so that was no help, but almost any darkish lettering on a lightish ground would look much the same in a monochrome picture.

All the lettering was hand done with a mapping pen, and it shows. This includes the GWR capitals on the sides and rear, because I know of no source of transfers for the sans serif lettering used on buses of the period. Weathering was confined to the wheels and mudguards, the springs, front axle, steering gear and lower part of the radiator, and the lower panels on the sides and rear. I used a mixture of pale grey and matt earth to try to simulate the chalky road grime of the Wiltshire by-roads. This tends to look a bit heavy-handed in black and white photographs, but is, I hope, less obtrusive on the model itself.

Class 60

Many thanks to Tim Shackleton for his article on the Class 60. His comparison with Continental and American hardware has needed saying for a considerable time and his humour and perception put everything into perspective without offence.

I am not too sure that the high point of the article wasn't his observations on nameplates – both ancient and modern! This is the finest article ever to appear in MRJ – I think.

And am I piddling about with a Lima 60? No, the perfection of LGB running in the garden is for me. It costs, though!

Bob Burrell
Corby
Northants

Paint-a-peel

I was very interested in the article dealing with 'orange peel' when spraying with cellulose paint. Hopefully, by getting the paint mixture and air pressure right, this can be avoided, but I have sometimes encountered similar problems occurring in corners or cavities where the paint has deflected off one surface and has dried too much by the time it eventually settles. Similarly, the dry over-spray dust from one area settles in the wet paint elsewhere on the model and also creates a very dry and rough surface. I have found that this effect can usually be rescued by immediately spraying the model with a gentle wash of cellulose thinners – not enough to wash the paint off or to cause sags, but just enough to flatten the surface.

In general, when spraying cellulose, I find that by applying a second coat of much thinner paint and a third coat of 'all but' neat thinners helps in achieving a smooth painted surface and hopefully avoids the 'orange peel' effect.

Gordon Gravett
Weston-super-Mare

Shunting passengers

I refer to Raymond Gibson's enquiry (letters, MRJ No. 109) regarding propelling of passenger trains. The incident at Appleby to which W. M. Dent referred appears to have been an irregularity in working. The train was being propelled into a freight siding, the turnout of which was presumably not equipped with a facing point lock. As this seems to have been a 'short cut' manoeuvre, it seems safe to assume that the blades were not 'clipped' in position. However, there were situations in which it was 'legal' to propel entire passenger trains (and I do not mean push-pull sets), for which facing point locks would have been provided on what were normally trailing points. One which survived until fairly late was the need to reverse up Weymouth–Waterloo trains into the old terminus station at Dorchester. This was a legacy of the fact that when the line was extended to Weymouth in 1857 it bypassed the terminus, but only a down platform was provided (known as Dorchester South). The original station was closed and a new one – complete with up platform on the main line – was opened in 1970.

And so to the trusty BR 1950 Rule Book – in particular Rule 116 'Attaching to and detaching from passenger trains'. 116a reads 'Vehicles must, when practicable, be attached to or detached from a passenger train without the train being moved'. 116c reads 'Before any vehicle containing passengers is moved over points, the person in charge of the operation must ascertain that the points are properly set, and that the line is clear and properly protected'. Rule 136, which is too long to quote here, refers to special precautions to be taken when setting back a passenger train which has overrun a platform.

I am still trying to think of any circumstances in which passengers would have been required to detrain during a normal operational activity. In recent years this was sometimes considered a prudent precaution when coupling two class 317 units at Royston – occasionally the 'Tightlock' automatic couplers refused to engage properly on the curve (shades of Alex Jacksons!) and a fairly violent approach was necessary. It did not go down well with the Cambridge commuters, especially in winter! Up to the advent of High Speed Trains on the East Coast Main Line, some Hull portions were detached from/attached to Leeds train at Doncaster, so it may have been that a similar degree of brute force was needed to couple buckeye-fitted Gresley and BR Mk I vehicles, but I cannot remember having to decamp in such circumstances.

Allan Sibley
March
Cambridgeshire

Mr. R. Gibson writes to ask about the attaching of additional vehicles and in particular at milk depots. I have been engaged for some time researching the workings of the GN/LNW Joint line in Leicestershire and that railway served the CWS Creamery at John o' Gaunt station. If you look on the map, you will see that this is a remote location and there would be no chance of a pilot locomotive being available there.

This depot was served by rail up to the early 1950s and I understand from locomotive crews who worked this line that milk tankers were worked both in and out by passenger train.

The procedure as related to me is that the incoming empties would arrive on the early morning passenger train. This departed Northampton at 6.30 a.m., arrived at Market Harborough at 7.03, waited there for over an hour(!) before continuing towards Nottingham at 8.15. En route the train called at John o' Gaunt at 8.45 and was booked there for 5 minutes. This allowed the locomotive to shunt the train – passengers and all – into the goods yard, leaving any milk tankers there. Then it was on to Great Dalby, Melton Mowbray North and so to Nottingham.

The return working concerned the afternoon Melton Mowbray–Market Harborough local passenger train. This was also the best-patronised passenger train on this line in later years. Departure was from Melton at 4.00 p.m., arriving at John o' Gaunt at 4.13. One minute was allowed for station duties in the public timetable but the WTT showed departure at 4.19. This 5-minute gap allowed the train – again with passengers aboard – to be drawn clear of the platform and crossover and then reversed into the goods yard across to the milk dock where the milk tanks stood, having been filled from the overhead equipment. Once coupled up, the complete entourage was pulled out of the yard back over the crossover onto the main line and away past Marefield Jct. to Tilton and to Market Harborough.

A photograph of this working has been published recently in the *SLS Journal* (Sept/Oct 1998). This shows LMS 2–6–2T No. 52 at Tilton with the afternoon Melton to Harborough local passenger in 1948, and there is one milk tanker at the rear of the train having been picked up at the previous station, John o' Gaunt.

The passenger service on the GN/LNW Joint was withdrawn in December 1953 and so these activities ceased then, and therefore I cannot answer Mr. Gibson's query about the date of any policy change.

All the above should be enough to give any Health and Safety Officer apoplexy!

Perhaps the readership should consider modelling John o' Gaunt, a small wayside station with varied activity. Not only was the CWS milk depot there but also, being just north of Marefield Jct., all the traffic from Leicester Belgrave Road passed the location. There was also a 'workmen's' train, which commenced there in the morning with all the reversal, and shunting that that entailed. Just imagine shunting passenger stock full of customers into a goods yard to collect milk tankers on an exhibition layout – could upset the 'know-alls'. The real spectacle here would be the southbound coal trains well on in the climb to Tilton – about 10 miles at 1 in 120 – latterly WD 2–8–0s – but previously LNW 'Super Ds' – what a sound. This must be just the location for the forthcoming Bachman WD.

Does anybody else know anything about the GN/LNW Joint?

Robin Cullup
Kettering
Northants

Six-wheeled Milk Tank Wagons

In view of the continuing interest in this subject, perhaps a bit of background would be helpful. With the rapid growth of London after World War I, dairy companies looked further afield for milk supplies, a demand that the railways were in a good position to satisfy. This demand, along with improved quality (for example, the introduction of tuberculin-tested milk) gave rise to the glass-lined tank wagon. The longer hauls demanded higher speeds and the first six-wheeled tank wagons were produced as a result.

The effective demise of the four-wheeled version came about in 1933 with the introduction of a rule which limited the speeds of passenger trains – and milk trains were signalled as passenger trains – to 60 mph when conveying any four-wheeled vehicle.

I believe this was a Railway Clearing House recommendation adopted by all four main-line companies. The LMS version, taken from the 1937 edition of the General Appendix to the Working Timetable (page 19), reads:

CONVEYANCE OF MILK TANKS
BY PASSENGER OR MILK TRAINS

Six wheeled milk tanks, loaded or empty, may be worked on any passenger or milk train without any special restriction.

Four wheeled milk tanks may run loaded or empty on passenger or milk trains but the service by which they are laid down to be conveyed must not exceed a speed of SIXTY MILES PER HOUR at any point on the journey and in all cases, whether loaded or empty, they must, except as shown below, be marshalled with a six or eight wheeled vehicle immediately behind them.

The instruction then goes on to detail minor allowed variations, but to summarise, whilst four-wheeled tanks were not banned, there were so many restrictions on their use that their sphere of operation was severely limited. It is not surprising therefore that both the LMS and L&NE railways fitted all their tanks on to six-wheeled underframes and used the redundant four-wheeled ones as container and similar vehicles.

For the record, there were subsequent later modifications to this instruction but they were of a minor nature and, generally speaking, it was extended to any four-wheeled vehicles with a wheelbase of less than 15ft. These changes were contained, so far as the LMS was concerned, in Supplements to the General Appendix. I have Supplements Nos. 3, 5 and 6 – this latter dated 1949 – but not Nos. 1, 2 or 4. If any reader has spare copies of these, I would be grateful for a chance to see them.

Don Rowland
Dalkeith
Midlothian

. . . and finally

Your editorial on the future of the hobby and the ensuing debate have struck many 'been here before' type chords with me. Simon Dunkley recalls, as I do, the 1970 *Railway Modeller* correspondence, its prejudice probably being understandable just after the end of steam. I also remember writing a letter to the *Modeller* in 1984 in response to a claim that modern railways weren't interesting, and, another fourteen years on, I suppose that the matter will always be subjective.

Lack of comprehension for the tastes of others, whether in railways, music, humour or women, is, after all, just part of the human condition. Unfortunately, it's one which sometimes shows itself as lack of tolerance, about which the Editor himself makes an early, and justified, point. Each successive generation has its own personal memories and inspirations, and it's these, as much as the reality, which it has an unquestionable right to value – to suggest that those that don't include steam are somehow less valid is a bit naughty, and has certainly caused some comment. I'm not sure about BR steam being a point of reference for the whole steam age, either; my own vague childhood memories of WDs passing my grandad's allotment, for instance, can't have much real connection with the heyday of the Hull & Barnsley. Those who do model pre-group might view the Editor's 'last years of steam' as rather decadent, and again it's only natural to reach a personal cut-off point when things start to look less rose-tinted. For me it was the 'stripey' liveries of the late 1980s which really started the rot, but I can still be moved by a well-detailed and weathered model of the period, such as Ian Metcalfe's NSE class 50 which once appeared in these very pages.

As for those bus shelters, the notion that modern railways consist of little else is becoming a bit of a tired old cliché nowadays, and the future of the hobby will surely not be well served by its perpetuation. They've never inspired me either, but then there were plenty of ugly stations in steam days! Rather than feel obliged to model them, I expect most modellers would just look elsewhere, and even nowadays there are many other subjects without necessarily modelling a main line. Secondary lines are not all 'basic railways': traditional, or at least more substantial modern, station buildings do exist, and freight workings and their railheads are actually on the increase. Simon mentions the 'blue period' activities of the Hull MRS; within this, and the associated EM Gauge Society East Riding Group we have consistently set out to advocate the qualities of the post-steam era, and it's nice to know that not everything falls on stony ground.

I also think that the finescale approach, like many things in life, is something that you fully get into only when you're ready, and this brings in Mr. Taylor's point on the age profile of 'serious' modellers, one which also came up at the EMGS AGM a couple of years ago. Younger modellers may not yet be attending lectures at Scaleforum (or reading MRJ, for that matter), but fifteen years ago neither was anyone I knew. As long as there are railways, there will be people with memories and the desire to recreate them, and with finescale modelling becoming ever more accessible, I think this a more likely natural progression.

To close on a slightly different tack, Peter Totman's rebodied 21T minerals are real 'blue period' wagons if ever there were. The 1971/72 Shildon vehicle is a conversion I was contemplating myself but hesitated over the unusual springs; I think Peter will find that they are actually longer and flatter than the MJT nine-leaf ones. Although they would need a lot of hacking, I think that a set of adapted ABS CCT van springs could possibly be made to look the part.

Ian Fleming
Hull

Misc.

CHANGE AT STAINES

We have received the following note from the organisers of the Staines Finescale Exhibition to take place on Saturday, 24th April 1999.

'Unforeseen events have caused Iain Rice to regretfully withdraw 'Bodesmeer' from the show and in his place we are pleased to have secured Bob Harper and his 7mm scale broad gauge 'Teign House Sidings'. We are sorry to lose Iain but obviously wish him well, whilst extending our thanks to Bob for stepping into the breach at short notice.'

MONTY'S MODEL RAILWAYS

We are sorry to announce that Monty's Model Railways has ceased trading following the death of its proprietor, Geoff Wood.

GWR MINI SHOW

The Model Railway Club has announced yet another event, which will take place on Saturday 8th May from 11.00 a.m. to 5.00 p.m. They are a busy bunch! This time the theme is the old Great Western Railway, including the railways of Wales and the Broad Gauge, and will feature visiting layouts, traders and specialist societies along with displays of archive material from the club's own library. Admission at the door is £2.00 and further details can be obtained from Mark Austin at Keen House, 4 Calshot Street, London N1 9DA.

GRICERS' DELIGHTS

We're particularly grateful to Martin Watts for the sudden surprise arrival on our desk of a paperback book entitled *Platform Souls* by Nicholas Whittaker (published by Indigo), which Martin thought we might like to read. Although remaindered (therefore cheap!) and thus possibly difficult to find now, it's worth the effort if you want to overload on pure nostalgia and re-live your trainspotting days. It covers the sixties up until more recent times and will appeal to anyone who admits to indulging in a pastime still derided by the press at almost every opportunity. I found it difficult to put down, frequently grinning inanely at almost every page as I re-lived my youth again and the memories came flooding back. Thoroughly recommended!

SOCIETY NOTES

The Hon. Secretary of the Scale-Seven Group is now Peter Kibble, 49 Birches Road, Codsall, Wolverhampton, WV8 2JQ. Membership enquiries should be addressed to Don Field, 6 Mathams Drive, Bishop Stortford, Herts, SG9 0NT.

The Edinburgh & Lothians Miniature Railway Club has new premises. Meetings are now held on Tuesday and Thursday evenings at 3 Piershill Terrace, Edinburgh. The club has exhibition layouts in O, O/16.5, OO, OO9 and N gauges. New members welcome.

Cleethorpes Model Railway Society has a new secretary: Peter Brackenbury, 112 Weelsby Road, Grimsby, N.E. Lincolnshire, DN32 0PT. Tel. 01472 879647.

The secretary of the Scalefour Society has a new address: B. K. Pearce, 5 Cedar Close, Teignmouth, Devon, TQ14 8UZ.

The new secretary of the Blackburn & East Lancashire Model Railway Society is J. J. Baldwin, 8 Nowell Grove, Read, Nr. Burnley, Lancs, BB12 7PG.

The Train Collectors Society has a new membership secretary, James Day, PO Box 20340, London NW11 6ZE.

HELP WANTED

Adrian Bavage of 45 Ashleigh Gardens, Wymondham, Norfolk, NR18 0EY is looking for information, especially photographs, concerning Rhymney Railway 'P' and 'P1' class 0–6–2 passenger tanks as rebuilt by the GWR with standard No. 10 boilers, in particular GWR Nos. 82, 77 and 76 in the 1930s. He has copies of T. L. Jones' drawing of the class, J. H. Russell's *Great Western Absorbed Engines* and RCTS Part 10, but would appreciate any further material which would help in the production of an accurate model. Similarly, he asks if there were any visible differences between the classes when built. Either write to the above address or e-mail him at: adrian.bavage@bbsrc.ac.uk

Dave Howlett of the Ebor Group of Railway Modellers seeks technical or anecdotal information concerning the Rowntrees Halt section of the Foss Islands branch line in York for his group's next modelling project. The group is assembling data on the prototypical features including operational, engineering, lineside topography, motive power and rolling stock. The section modelled will be that between Wigginton and Haxby Road bridges including the Rowntree Cocoa Works. The branch also provided access to the Derwent Valley Light Railway at Layerthorpe plus the Foss Islands Goods Depot in York and details of this traffic is also sought. Dave can be contacted on 01904 738 639.

APPEAL

At the 'O' Gauge Langley show on 6th December 1998, Jim Gander left his purchases of two Meteor GW cattle wagon kits on a seat next to the running tracks while testing a locomotive. They were not there when the exhibition closed at 5.00 p.m. If someone mistakenly picked them up, could they please contact him on 01753 672 480.

DIARY

APRIL

24 **Coventry & Warwickshire Gauge O Modellers** exhibition at Church of the Holy Cross, St. Austell Road, Wyken, Coventry. 10.00 – 4.30. £1.50/50p.

24/25 **St. Johns (Mickleover) Model Railway Group** Derby '99 exhibition at The Assembly Rooms, The Market Place, Derby. 10.30 – 7.00 (Sat), 10.00 – 5.00 (Sun). £4.50/£2.00/£10.00.

30–2 May **Association of Model Railway Clubs Wales & West of England** 31st Bristol Model Railway Exhibition at Thornbury Leisure Centre, Alveston Hill, Bristol. 2.00 – 8.00 (Fri), 10.00 – 7.00 (Sat), 10.00 – 5.00 (Sun). Admission prices not advised.

MAY

8 **The 7mm Narrow Gauge Association** 1999 convention and AGM at The Queens Hall, London Road, Derby. Further information from Phil Traxson (01332 774616) or Mike Bellamy (01332 518109).

8 **Kettering & District Model Railway Society** exhibition at the Crescent Community Centre, Laburnum Crescent, Kettering. 11.00 – 5.00. £1.50/75p.

8 **Loddon Vale Model Railway Club** exhibition at Wokingham District Council Offices, Shute End, Wokingham, Berkshire. 10.00 – 5.00. £2.50/£1.50/£5.00.

8/9 **Middlesbrough Model Railway Club** exhibition at The Newport Settlement YCC, off Union Street, Middlesbrough. 10.00 – 5.30. £2.00/£1.00/£4.50.

8/9 **Redditch Model Railway Club** exhibition at Redditch Town Hall, Redditch. 10.00 – 5.00. £2.50/£1.50/£6.00.

8/9 **Carshalton & Sutton Model Railway Club** 'Trains in Miniature 99' at The Grandstand Exhibition Centre, Epsom Racecourse, Epsom Downs, Surrey. 10.00 – 6.00 (5.00 Sun). £3.50/£2.50/£11.00.

15/16 **EXPO EM '99** at the Bletchley Leisure Centre, Princes Way, Bletchley. 10.30 – 6.00 (5.00 Sun). Members £3.00, non-members £4.00.

15/16 **Cleethorpes Model Railway Society** exhibition at Cleethorpes Leisure Centre, Kingsway, Cleethorpes, N.E. Lincs. 10.00 – 7.30 (5.00 Sun). £2.50/£1.00/£2.00/£6.00.

22 **Hazel Grove & District Model Railway Society** open day at Hazel Grove Methodist Church Hall, Wesley Street, Hazel Grove, Stockport. 10.00 – 4.00. Admission prices not advised.

22 **Ely & District Model Railway Club** exhibition at The Maltings, Ely. 10.30 – 5.30. £2.00/80p.

22 **The 2mm Scale Association** Expo 2mm '99 at The Haling Dene Centre, Penkridge, Staffordshire. 10.30 – 5.00. £3.00.

22/23 **Trainwest '99 Model Railway Exhibition** at both halls at the Olympiad, Chippenham, Wilts. 10.00 – 6.00 (5.00 Sun). £3.50/£3.00/£2.50/£10.00.

29 **Weston Railway Modellers** exhibition at St. Saviours Church Hall, Locking Road, Weston-super-Mare, North Somerset. 10.30 – 5.00. £1.50/50p.

HISTORICAL MODEL RAILWAY SOCIETY

Bedford Area: 26th May 1999. 7.30 at the Addison Centre, Kempston. 'Pullman Cars and Pullman Car Services' – D. Lindsay.

Bletchley Area: 28th April 1999. 7.30 at Milton Keynes Model Railway Society Clubrooms, Bletchley. 'The Raetian Railway in Switzerland – E. C. Vaughan.

East Midlands Area: 12th May 1999. 7.30 at the 'William IV', Sutton Road, Mansfield. 'British Railways Mark One Coaches' – K. Parkin.

Essex Area: 7.45 at St. Mary's Church Centre, Great Baddow, Chelmsford.
30th April 1999. 'And you thought they were all clean: The Special Edition' – C. Youett.
28th May 1999. 'London & Birmingham Railway' – I. Forsyth.

North West Area: 6th May 1999. 8.00 at the ESWA Club, Park Road South, Birkenhead, Wirral. 'Til Birnam Wood be come to Birkenhead: tree-making demonstration' – I. Clark.

Sussex Area: 13th May 1999. 7.15 at London Road Station, Brighton. 'Design for a Layout' – T. Cole.

Worcester Area: 12th May 1999. 7.30 at The Cherry Orchard Centre, Orchard Street, Worcester. 'Changes 2 – Traffic around Burton-on-Trent' – P. Eames.

LAYOUTS INVITED

GLENFIELD – EM by Brendan Walsh. A Leicester mineral line.

ANMER LANE – 18.83 by the Amesway Circle. East Essex 1997/8.

EAST ILSLEY – EM by Margaret Evans. DN&S.

MANAFON MILLS by the Dymock Group. GWR (Wales) 1920s.

SHONEWOOD (Mk 3) – EM by Tony Gee & Malcolm Crawley. LNER.

HALLBURY – EM by Vic Halliwell. GWR 1930s.

WATERLEY CROSS – EM by Ray & Cida Earl. LMS (LNWR) 1920s.

REGENT ROAD – EM by Chris Hewitt. Liverpool Overhead Railway & docks.

WOODCROFT (enlarged) – EM by David Smith. GNR 1900-10.

WALFORD TOWN – EM by Leamington & Warwick MRS. East London 1984-88. (Last showing before retirement).

MARYLAND – EM by the Scottish EM Group. Forest of Dean.

GREAT BARDFIELD – 18.83 by David Hawkins. Rural Essex in the late 1950s.

HMRS EM GNR layout.

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Enquiries to John Sneyd (ExpoEM '99 Manager)
0171 274 1073

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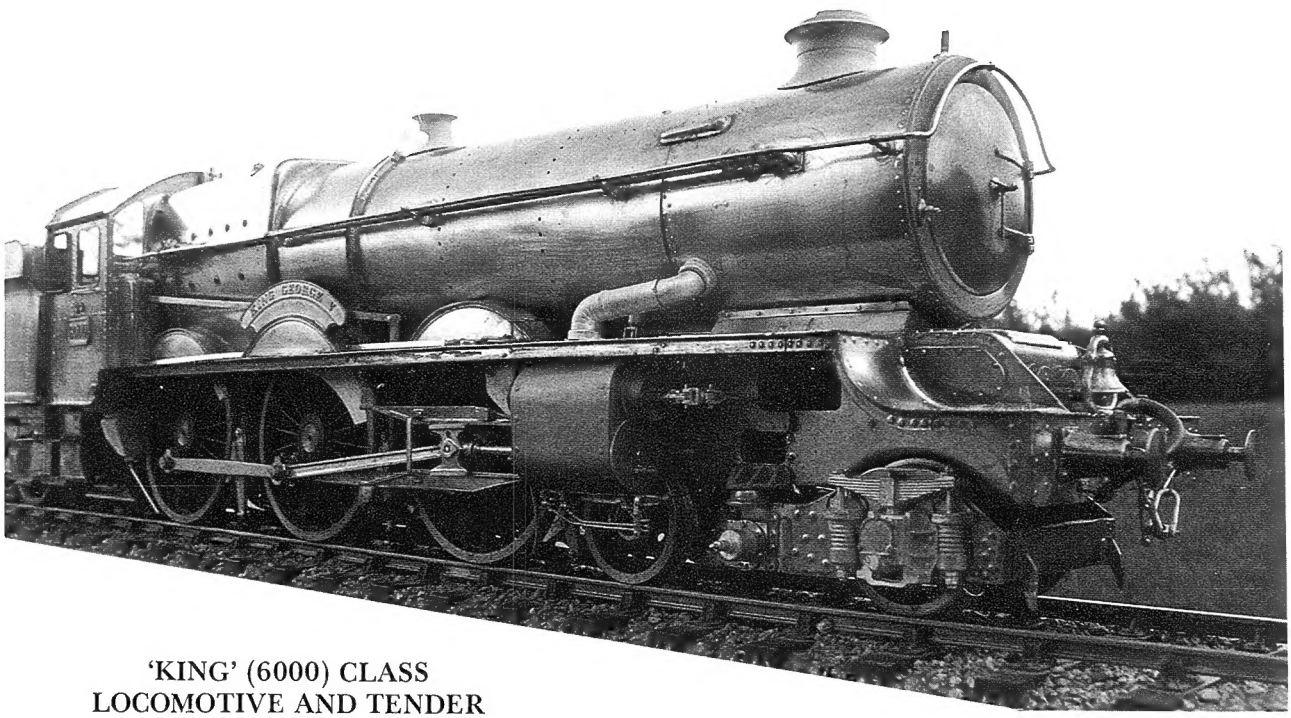

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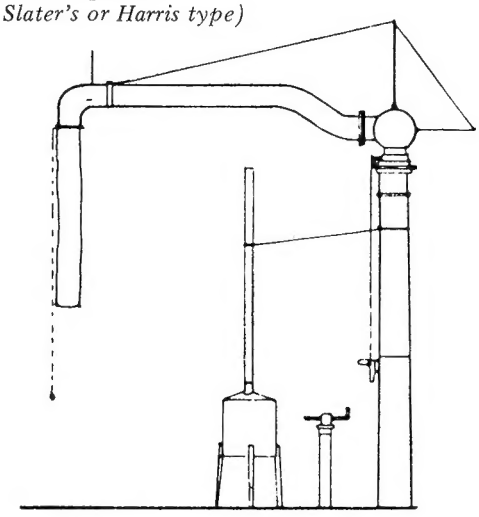

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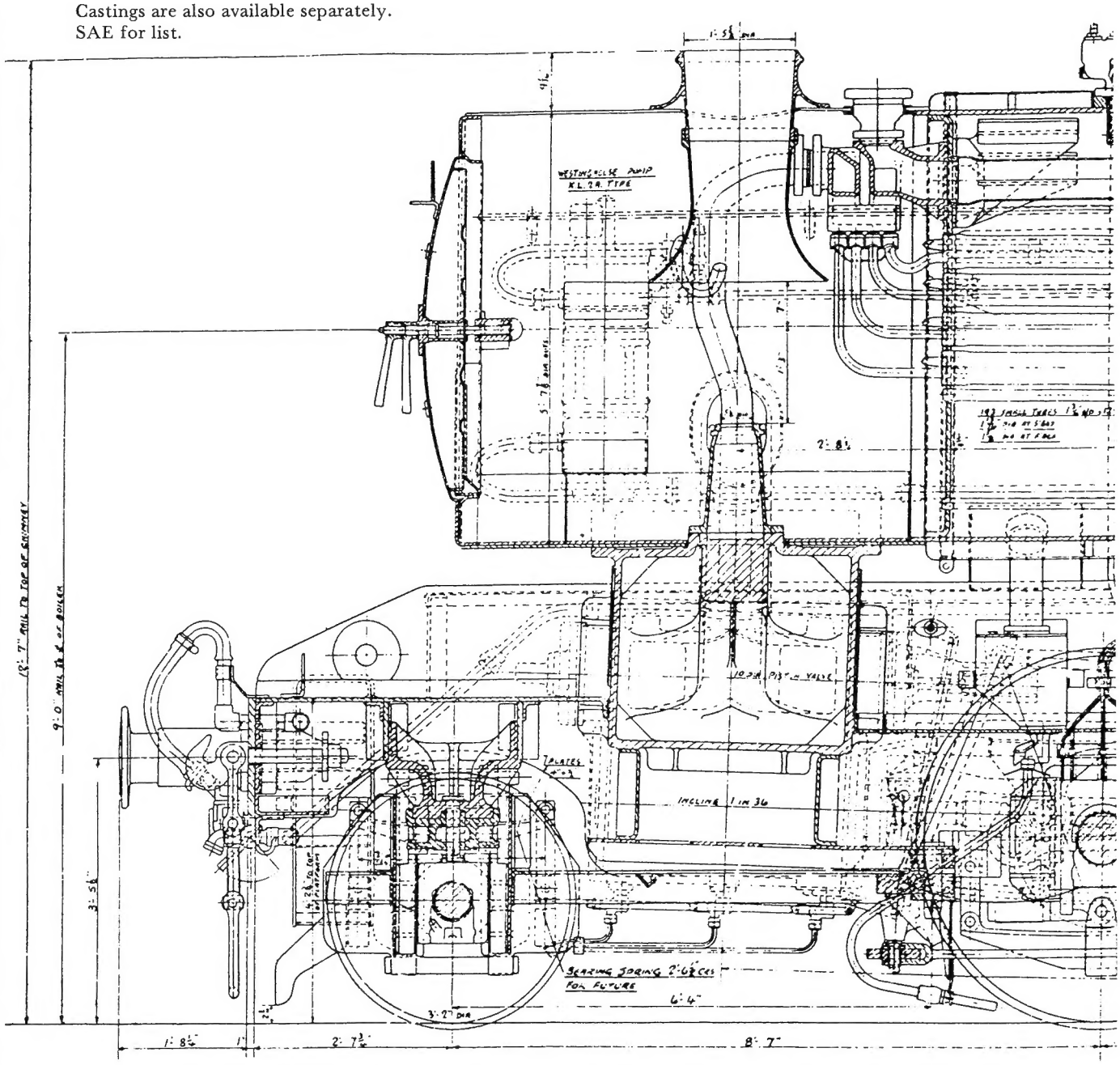

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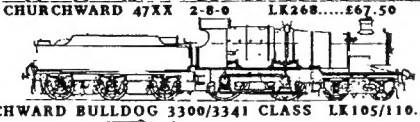

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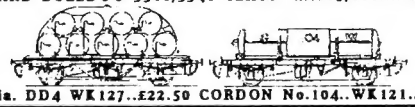

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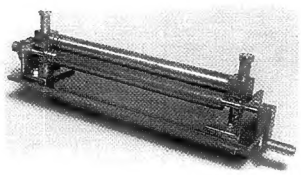

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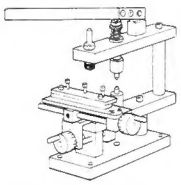

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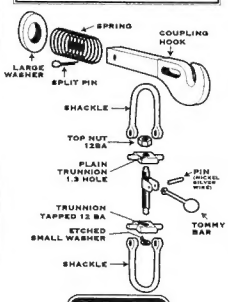

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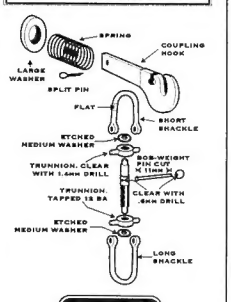

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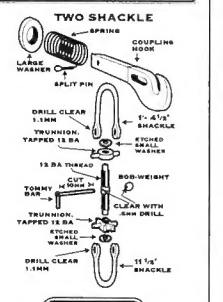

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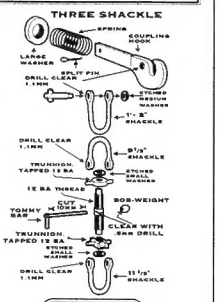

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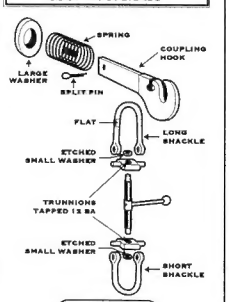

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